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<110> Syngenta Participations, AG
 Cooper, Bret
 5 <120> STRESS-RELATED POLYPEPTIDES AND USES THEREFOR
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	atc ttc gtc acc cgt tct cgc agc tgg tcc ttc atc gaa cgc cct ggt Ile Phe Val Thr Arg Ser Arg Ser Trp Ser Phe Ile Glu Arg Pro Gly 325 330 335	1008
45	ctt ctc ttg gtc act gca ttc atg ctt gca caa ctg gtt gcg aca ttc Leu Leu Leu Val Thr Ala Phe Met Leu Ala Gln Leu Val Ala Thr Phe 340 345 350	1056
50	ctc gct gtc tat gcc aac tgg ggc ttt gcc agg atc aag ggc att ggc Leu Ala Val Tyr Ala Asn Trp Gly Phe Ala Arg Ile Lys Gly Ile Gly 355 360 365	1104
55	tgg ggc tgg gct ggc gtt atc tgg ctt tac agc att gtg ttc tac ttc Trp Gly Trp Ala Gly Val Ile Trp Leu Tyr Ser Ile Val Phe Tyr Phe 370 375 380	1152
60	cct ctt gac atc ttc aag ttc ttc atc cgc ttt gtg ctg agt gga agg Pro Leu Asp Ile Phe Lys Phe Phe Ile Arg Phe Val Leu Ser Gly Arg 385 390 395 400	1200
	gcc tgg gac aac ctc ctt gag aac aag att gca ttc acc acc aag aag Ala Trp Asp Asn Leu Leu Glu Asn Lys Ile Ala Phe Thr Thr Lys Lys 405 410 415	1248
65	gat tac ggt agg gag gag agg gag gca caa tgg gcc acc gca caa aga Asp Tyr Gly Arg Glu Glu Arg Glu Ala Gln Trp Ala Thr Ala Gln Arg 420 425 430	1296

aca ctt cac ggc ctt cag cca ccg gag gtc gcc tcc aac acg ctc ttc 1344
 Thr Leu His Gly Leu Gln Pro Pro Glu Val Ala Ser Asn Thr Leu Phe
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5 aac gac aag agc agc tac cgc gag ctc tct gag atc gct gag caa gcc 1392
 Asn Asp Lys Ser Ser Tyr Arg Glu Leu Ser Glu Ile Ala Glu Gln Ala
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10 aag aga cga gct gag atc gcg agg ctg aga gag ctg aac act ctc aag 1440
 Lys Arg Arg Ala Glu Ile Ala Arg Leu Arg Glu Leu Asn Thr Leu Lys
 465 470 475 480

15 ggc cac gtc gaa tcg gtg gtg aag ctg aag ggg ctg gac atc gac acg 1488
 Gly His Val Glu Ser Val Val Lys Leu Lys Gly Leu Asp Ile Asp Thr
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 Ile Gln Gln Asn Tyr Thr Val
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40 Ile Arg Lys Ala Leu His Leu Gly Val Asn Val Lys Met Ile Thr Gly
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45 Asp Gln Leu Ala Ile Gly Lys Glu Thr Gly Arg Arg Leu Gly Met Gly
 65 70 75 80

50 Thr Asn Met Tyr Pro Ser Ser Ala Leu Leu Gly Gln Asn Lys Asp Ala
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Ser Leu Glu Ala Leu Pro Val Asp Glu Leu Ile Glu Lys Ala Asp Gly
 100 105 110

55 Phe Ala Gly Val Phe Pro Glu His Lys Tyr Glu Ile Val Lys Arg Leu
 115 120 125

60 Gln Glu Lys Lys His Ile Val Gly Met Thr Gly Asp Gly Val Asn Asp
 130 135 140

65 Ala Pro Ala Leu Lys Lys Ala Asp Ile Gly Ile Ala Val Ala Asp Ala
 145 150 155 160

Ile Asp Ala Ala Arg Ser Ala Ser Asp Ile Val Leu Thr Glu Pro Gly
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5 Leu Ser Val Ile Ile Ser Ala Val Leu Thr Ser Arg Cys Ile Phe Gln
 180 185 190

10 Arg Met Lys Asn Tyr Thr Ile Tyr Ala Val Ser Ile Thr Ile Arg Ile
 195 200 205

15 Val Leu Gly Phe Leu Leu Ile Ala Leu Ile Trp Lys Tyr Asp Phe Ser
 210 215 220

Pro Phe Met Val Leu Ile Ile Ala Ile Leu Asn Asp Gly Thr Ile Met
 225 230 235 240

20 Thr Ile Ser Lys Asp Arg Val Lys Pro Ser Pro Leu Pro Asp Ser Trp
 245 250 255

25 Lys Leu Lys Glu Ile Phe Ala Thr Gly Ile Val Leu Gly Ser Tyr Leu
 260 265 270

30 Ala Leu Met Thr Val Ile Phe Phe Trp Ala Met His Lys Thr Asp Phe
 275 280 285

35 Phe Thr Asp Lys Phe Gly Val Arg Ser Ile Arg Asn Ser Glu His Glu
 290 295 300

Met Met Ser Ala Leu Tyr Leu Gln Val Ser Ile Val Ser Gln Ala Leu
 305 310 315 320

40 Ile Phe Val Thr Arg Ser Arg Ser Trp Ser Phe Ile Glu Arg Pro Gly
 325 330 335

45 Leu Leu Leu Val Thr Ala Phe Met Leu Ala Gln Leu Val Ala Thr Phe
 340 345 350

50 Leu Ala Val Tyr Ala Asn Trp Gly Phe Ala Arg Ile Lys Gly Ile Gly
 355 360 365

55 Trp Gly Trp Ala Gly Val Ile Trp Leu Tyr Ser Ile Val Phe Tyr Phe
 370 375 380

Pro Leu Asp Ile Phe Lys Phe Phe Ile Arg Phe Val Leu Ser Gly Arg
 385 390 395 400

60 Ala Trp Asp Asn Leu Leu Glu Asn Lys Ile Ala Phe Thr Thr Lys Lys
 405 410 415

65 Asp Tyr Gly Arg Glu Glu Arg Glu Ala Gln Trp Ala Thr Ala Gln Arg
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Thr Leu His Gly Leu Gln Pro Pro Glu Val Ala Ser Asn Thr Leu Phe
 435 440 445

5 Asn Asp Lys Ser Ser Tyr Arg Glu Leu Ser Glu Ile Ala Glu Gln Ala
 450 455 460

10 Lys Arg Arg Ala Glu Ile Ala Arg Leu Arg Glu Leu Asn Thr Leu Lys
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Ile Gln Gln Asn Tyr Thr Val
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 Ala Trp Ala Pro Ala Lys Pro Arg Ser Ser Thr Leu Ser Met Pro Thr
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 tcg agg gca ccc acc tcc ctc aga gcg gcg gcg gag gat cag ccc gcc 144
 Ser Arg Ala Pro Thr Ser Leu Arg Ala Ala Ala Glu Asp Gln Pro Ala
 35 40 45

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 gcg gcg gcg acg gag gag aag aag cca gcc ccc gcg ggg ttc gtg ccg 192
 Ala Ala Ala Thr Glu Glu Lys Lys Pro Ala Pro Ala Gly Phe Val Pro
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 ccg cag ctg gac ccc aac acg ccg tcc ccg atc ttc ggc ggg agc acg 240
 Pro Gln Leu Asp Pro Asn Thr Pro Ser Pro Ile Phe Gly Gly Ser Thr
 65 70 75 80

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 ggg gga ctc ctc cgg aag gcg cag gtg gag gag ttc tac gtc atc aca 288
 Gly Gly Leu Leu Arg Lys Ala Gln Val Glu Glu Phe Tyr Val Ile Thr
 85 90 95

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 tgg acg tcg ccc aag gag cag gtg ttc gag atg ccc acg ggc ggc gcc 336
 Trp Thr Ser Pro Lys Glu Gln Val Phe Glu Met Pro Thr Gly Gly Ala
 100 105 110

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 gcc atc atg cgc gag ggc ccc aac ctg ctg aag ctg gcc agg aag gag 384
 Ala Ile Met Arg Glu Gly Pro Asn Leu Leu Lys Leu Ala Arg Lys Glu
 115 120 125

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 cag tgc ctg gcc ctg ggc acc agg ctc cgc tcc aag tac aag atc aac 432
 Gln Cys Leu Ala Leu Gly Thr Arg Leu Arg Ser Lys Tyr Lys Ile Asn
 130 135 140

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 tac cag ttc tac cgc gtc ttc ccc aat ggc gag gtg cag tac ctc cac 480

Tyr Gln Phe Tyr Arg Val Phe Pro Asn Gly Glu Val Gln Tyr Leu His
 145 150 155 160

5 ccc aag gac ggc gtc tac ccg gag aag gtc aac gcc ggc agg cag ggc 528
 Pro Lys Asp Gly Val Tyr Pro Glu Lys Val Asn Ala Gly Arg Gln Gly
 165 170 175

10 gtc ggc cag aac ttc cgc agc atc ggc aag aac gtc agc ccc atc gag 576
 Val Gly Gln Asn Phe Arg Ser Ile Gly Lys Asn Val Ser Pro Ile Glu
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gtc aag ttc acc ggc aag aac gtc ttc gac atc tag 612
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 35 40 45

35 Ala Ala Ala Thr Glu Glu Lys Lys Pro Ala Pro Ala Gly Phe Val Pro
 50 55 60

40 Pro Gln Leu Asp Pro Asn Thr Pro Ser Pro Ile Phe Gly Gly Ser Thr
 65 70 75 80

45 Gly Gly Leu Leu Arg Lys Ala Gln Val Glu Glu Phe Tyr Val Ile Thr
 85 90 95

50 Trp Thr Ser Pro Lys Glu Gln Val Phe Glu Met Pro Thr Gly Gly Ala
 100 105 110

55 Ala Ile Met Arg Glu Gly Pro Asn Leu Leu Lys Leu Ala Arg Lys Glu
 115 120 125

Gln Cys Leu Ala Leu Gly Thr Arg Leu Arg Ser Lys Tyr Lys Ile Asn
 130 135 140

60 Tyr Gln Phe Tyr Arg Val Phe Pro Asn Gly Glu Val Gln Tyr Leu His
 145 150 155 160

65 Pro Lys Asp Gly Val Tyr Pro Glu Lys Val Asn Ala Gly Arg Gln Gly
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Val Gly Gln Asn Phe Arg Ser Ile Gly Lys Asn Val Ser Pro Ile Glu

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25	ccg cgg ggc gtc gcc tgc gcc ctt cgc cgg agg ccc tcc aag tac aag Pro Arg Gly Val Ala Cys Ala Leu Arg Arg Arg Pro Ser Lys Tyr Lys 20 25 30	96	
30	aat aaa atc cag aat gag gag gtt gta gta gag gat gat att ggc ggt Asn Lys Ile Gln Asn Glu Glu Val Val Val Glu Asp Asp Ile Gly Gly 35 40 45	144	
35	ggt ggt gaa gac gat gac gac gcg ctg gaa gca ctt ttt aag cag ttg Gly Gly Glu Asp Asp Asp Ala Leu Glu Ala Leu Phe Lys Gln Leu 50 55 60	192	
40	gaa gaa gat ctc aag aat gat gat ttg tct gtt gag gat gat gac gat Glu Glu Asp Leu Lys Asn Asp Asp Leu Ser Val Glu Asp Asp Asp Asp 65 70 75 80	240	
45	gga att tca gaa gaa gat atg gca aga ttt gag cag gag ttg gca gag Gly Ile Ser Glu Glu Asp Met Ala Arg Phe Glu Gln Glu Leu Ala Glu 85 90 95	288	
50	gca atc ggg gat att gct gat gct gat gaa tct gga gag ggt tcg tca Ala Ile Gly Asp Ile Ala Asp Ala Asp Glu Ser Gly Glu Gly Ser Ser 100 105 110	336	
55	tta ggc tct gag gct tat ggg aat gat gaa aaa acg gat gaa atc aaa Leu Gly Ser Glu Ala Tyr Gly Asn Asp Glu Lys Thr Asp Glu Ile Lys 115 120 125	384	
60	cgg cca gag ctg aaa aac tgg caa ctt aag agg ctg gct cgt gct ctc Arg Pro Glu Leu Lys Asn Trp Gln Leu Lys Arg Leu Ala Arg Ala Leu 130 135 140	432	
65	aaa ata ggt cgc cgt aaa act agt ata aag aat ctt gca ggg gaa cta Lys Ile Gly Arg Arg Lys Thr Ser Ile Lys Asn Leu Ala Gly Glu Leu 145 150 155 160	480	
70	ggc ctg gat agg act ttg gtc att gaa ttg ctc cga aat cca cct cca Gly Leu Asp Arg Thr Leu Val Ile Glu Leu Leu Arg Asn Pro Pro Pro 165 170 175	528	
75	aaa ctt cta ttc atg tct gat tct ttg cct gat gaa gac cct tct aaa Lys Leu Leu Phe Met Ser Asp Ser Leu Pro Asp Glu Asp Pro Ser Lys 180 185 190	576	
80	cct gaa atc aag gaa ata gag ccc tct cca gta gtt gat aac gct gat Pro Glu Ile Lys Glu Ile Glu Pro Ser Pro Val Val Asp Asn Ala Asp	624	

	195	200	205	
5	gtc act gaa acc aag cca cag acg gaa ctt cct gtt cat gtc atg tgc Val Thr Glu Thr Lys Pro Gln Thr Glu Leu Pro Val His Val Met Cys 210 215 220	672		
10	gca gaa tgg tct tca cag aaa aga tta aaa aag gtg caa ctg gag aca Ala Glu Trp Ser Ser Gln Lys Arg Leu Lys Lys Val Gln Leu Glu Thr 225 230 235 240	720		
15	tta gaa aga gtc tac tcc cga acc aaa cgc cct aca aat aca atg atc Leu Glu Arg Val Tyr Ser Arg Thr Lys Arg Pro Thr Asn Thr Met Ile 245 250 255	768		
20	agc agc ata gtt caa gtg aca agc ctt cca cgg aag acc att gtt aag Ser Ser Ile Val Gln Val Thr Ser Leu Pro Arg Lys Thr Ile Val Lys 260 265 270	816		
25	tgg ttt gag gat aga agg gaa cag gat ggg gta cct gac cat cga gtt Trp Phe Glu Asp Arg Arg Glu Gln Asp Gly Val Pro Asp His Arg Val 275 280 285	864		
30	gca ttc aag aga tcc cta tct gag acc ata gct agt t Ala Phe Lys Arg Ser Leu Ser Glu Thr Ile Ala Ser 290 295 300	901		
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50	Asn Lys Ile Gln Asn Glu Glu Val Val Val Glu Asp Asp Ile Gly Gly 35 40 45			
55	Gly Gly Glu Asp Asp Asp Asp Ala Leu Glu Ala Leu Phe Lys Gln Leu 50 55 60			
60	Glu Glu Asp Leu Lys Asn Asp Asp Leu Ser Val Glu Asp Asp Asp Asp 65 70 75 80			
65	Gly Ile Ser Glu Glu Asp Met Ala Arg Phe Glu Gln Glu Leu Ala Glu 85 90 95			
	Ala Ile Gly Asp Ile Ala Asp Ala Asp Glu Ser Gly Glu Gly Ser Ser 100 105 110			
	Leu Gly Ser Glu Ala Tyr Gly Asn Asp Glu Lys Thr Asp Glu Ile Lys 115 120 125			
	Arg Pro Glu Leu Lys Asn Trp Gln Leu Lys Arg Leu Ala Arg Ala Leu 130 135 140			

5 Lys Ile Gly Arg Arg Lys Thr Ser Ile Lys Asn Leu Ala Gly Glu Leu
 145 150 155 160
 Gly Leu Asp Arg Thr Leu Val Ile Glu Leu Leu Arg Asn Pro Pro Pro
 165 170 175
 10 Lys Leu Leu Phe Met Ser Asp Ser Leu Pro Asp Glu Asp Pro Ser Lys
 180 185 190
 15 Pro Glu Ile Lys Glu Ile Glu Pro Ser Pro Val Val Asp Asn Ala Asp
 195 200 205
 20 Val Thr Glu Thr Lys Pro Gln Thr Glu Leu Pro Val His Val Met Cys
 210 215 220
 25 Ala Glu Trp Ser Ser Gln Lys Arg Leu Lys Lys Val Gln Leu Glu Thr
 225 230 235 240
 Leu Glu Arg Val Tyr Ser Arg Thr Lys Arg Pro Thr Asn Thr Met Ile
 245 250 255
 30 Ser Ser Ile Val Gln Val Thr Ser Leu Pro Arg Lys Thr Ile Val Lys
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 Ala Pro Arg Arg Pro Ser Thr Phe Leu Asn Ala Val Ala Leu Gly Asn
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 gtc ggg gcg ggc aag tcg gcc gtg ctg aac agc ctc atc ggc cac ccc 96
 Val Gly Ala Gly Lys Ser Ala Val Leu Asn Ser Leu Ile Gly His Pro
 20 25 30
 60 gtg ctg ccg acg ggg gag aac ggg gcg acg agg gcg cca att gtg gtg 144
 Val Leu Pro Thr Gly Glu Asn Gly Ala Thr Arg Ala Pro Ile Val Val
 35 40 45
 65 gac ctg cag agg gac ccg ggc ctc agc agc aag tcc atc gtg ctg caa 192
 Asp Leu Gln Arg Asp Pro Gly Leu Ser Ser Lys Ser Ile Val Leu Gln
 50 55 60

	atc gac agc aag tcg cag cgg gtg tcc gca agt tcg ctg cgg cat tcg	240
	Ile Asp Ser Lys Ser Gln Arg Val Ser Ala Ser Ser Leu Arg His Ser	
	65 70 75 80	
5	ctg cag gac agg ctc agc aag ggg gcg tcc agc gga tcc agt agg ggc	288
	Leu Gln Asp Arg Leu Ser Lys Gly Ala Ser Ser Gly Ser Ser Arg Gly	
	85 90 95	
10	cgt gta gag ggg atc aat ctc aag ctg cgg acg agt aca gct ccc cca	336
	Arg Val Glu Gly Ile Asn Leu Lys Leu Arg Thr Ser Thr Ala Pro Pro	
	100 105 110	
15	cta aag ctg gtt gat tta cct ggg ata gac cag cga gct gtt gac gat	384
	Leu Lys Leu Val Asp Leu Pro Gly Ile Asp Gln Arg Ala Val Asp Asp	
	115 120 125	
20	cca atg att aat gaa tat gct ggg cac aat gat gca ata ctg cta gtt	432
	Pro Met Ile Asn Glu Tyr Ala Gly His Asn Asp Ala Ile Leu Leu Val	
	130 135 140	
25	gtg ata cct gca atg caa gca gct gat gtt gcg tca tct cga gct ctt	480
	Val Ile Pro Ala Met Gln Ala Ala Asp Val Ala Ser Ser Arg Ala Leu	
	145 150 155 160	
	agg ctg gcc aag gat att gat gca gat ggc acc aga act gta ggt gtg	528
	Arg Leu Ala Lys Asp Ile Asp Ala Asp Gly Thr Arg Thr Val Gly Val	
	165 170 175	
30	ata agt aaa gtt gat caa gca gaa gga gat gca aaa act ata gct tgt	576
	Ile Ser Lys Val Asp Gln Ala Glu Gly Asp Ala Lys Thr Ile Ala Cys	
	180 185 190	
35	gtt cag gcc ctt ctg ttg aat aag ggc cca aaa aac ctt cca gat atc	624
	Val Gln Ala Leu Leu Leu Asn Lys Gly Pro Lys Asn Leu Pro Asp Ile	
	195 200 205	
40	gag tgg gtt gct ctg ata gga caa tca gtt gca att gcg tca gct caa	672
	Glu Trp Val Ala Leu Ile Gly Gln Ser Val Ala Ile Ala Ser Ala Gln	
	210 215 220	
45	gca gca ggt tct gaa aac tca cta gaa aca gca tgg aat gct gaa gct	720
	Ala Ala Gly Ser Glu Asn Ser Leu Glu Thr Ala Trp Asn Ala Glu Ala	
	225 230 235 240	
	gaa acc ctc aga tcc atc tta act gga gct cca .aaa agt aaa cta ggt	768
	Glu Thr Leu Arg Ser Ile Leu Thr Gly Ala Pro Lys Ser Lys Leu Gly	
	245 250 255	
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	Arg Ile Ala Leu Val Asp Thr Ile Ala Lys	
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Val Leu Pro Thr Gly Glu Asn Gly Ala Thr Arg Ala Pro Ile Val Val
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 Asp Leu Gln Arg Asp Pro Gly Leu Ser Ser Lys Ser Ile Val Leu Gln
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 Ile Asp Ser Lys Ser Gln Arg Val Ser Ala Ser Ser Leu Arg His Ser
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 Leu Gln Asp Arg Leu Ser Lys Gly Ala Ser Ser Gly Ser Ser Arg Gly
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 Leu Lys Leu Val Asp Leu Pro Gly Ile Asp Gln Arg Ala Val Asp Asp
 115 120 125
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 Pro Met Ile Asn Glu Tyr Ala Gly His Asn Asp Ala Ile Leu Leu Val
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 Val Ile Pro Ala Met Gln Ala Ala Asp Val Ala Ser Ser Arg Ala Leu
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 Arg Leu Ala Lys Asp Ile Asp Ala Asp Gly Thr Arg Thr Val Gly Val
 165 170 175
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 180 185 190
 Val Gln Ala Leu Leu Leu Asn Lys Gly Pro Lys Asn Leu Pro Asp Ile
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	1 5 10 15			
10	cat ggt gaa gct tca aag gca gat tcc tcc aag aag ctg cgg atg tcg	96		
	His Gly Glu Ala Ser Lys Ala Asp Ser Ser Lys Lys Leu Arg Met Ser			
	20 25 30			
15	gcg ccg cct ctg tcc ggt ggc tac gac cac ccc ggg ctg atc ccg ggg	144		
	Ala Pro Pro Leu Ser Gly Gly Tyr Asp His Pro Gly Leu Ile Pro Gly			
	35 40 45			
20	ctc ccg gat gag atc tcg ctg cag atc ctc gca agg atg ccc cgg atg	192		
	Leu Pro Asp Glu Ile Ser Leu Gln Ile Leu Ala Arg Met Pro Arg Met			
	50 55 60			
25	ggg tat ctg aat gca aag atg gtt tcg agg agc tgg aag gct gcg atc	240		
	Gly Tyr Leu Asn Ala Lys Met Val Ser Arg Ser Trp Lys Ala Ala Ile			
	65 70 75 80			
30	act ggc gtg gag ctg tac cgg gtg agg aag gag ctg ggt gtg agt gag	288		
	Thr Gly Val Glu Leu Tyr Arg Val Arg Lys Glu Leu Gly Val Ser Glu			
	85 90 95			
35	gaa tgg ctg tac atg ctt acc aag tca gat gat ggg aag cta gtg tgg	336		
	Glu Trp Leu Tyr Met Leu Thr Lys Ser Asp Asp Gly Lys Leu Val Trp			
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40	aat gca ttc gat ccg gtt tgt ggc caa tgg cag agg ctg cca ctg atg	384		
	Asn Ala Phe Asp Pro Val Cys Gly Gln Trp Gln Arg Leu Pro Leu Met			
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45	ccg ggg atc agc cat gga gga gaa tgc aag agg ggc atc cct ggg ttg	432		
	Pro Gly Ile Ser His Gly Gly Glu Cys Lys Arg Gly Ile Pro Gly Leu			
	130 135 140			
50	tgg tta ggg gat ttg ttg agc gcc ggc atc agg gtc tct gat gtt att	480		
	Trp Leu Gly Asp Leu Leu Ser Ala Gly Ile Arg Val Ser Asp Val Ile			
	145 150 155 160			
55	aga ggc tgg ctt ggc caa agg gat tca ttg gat agg ctt ccg ttc tgc	528		
	Arg Gly Trp Leu Gly Gln Arg Asp Ser Leu Asp Arg Leu Pro Phe Cys			
	165 170 175			
60	ggg tgt gca att ggg aca gtc aac ggg tgc atc tat gtt tta ggt gga	576		
	Gly Cys Ala Ile Gly Thr Val Asn Gly Cys Ile Tyr Val Leu Gly Gly			
	180 185 190			
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	Phe Ser Arg Gly Ser Ala Met Lys Cys Val Trp Arg Tyr Asp Pro Phe			
	195 200 205			
70	gtc aat gcg tgg cag gag gtt agc tcg atg agc acc ggg cgc gca ttc	672		
	Val Asn Ala Trp Gln Glu Val Ser Ser Met Ser Thr Gly Arg Ala Phe			
	210 215 220			
75	tgc aag gct agc ctg ctg aac aac aag ctg tat gtt gtt ggt ggt gtc	720		
	Cys Lys Ala Ser Leu Leu Asn Asn Lys Leu Tyr Val Val Gly Gly Val			
	225 230 235 240			
80	agc aaa ggc aag aac ggg tta gct ccg ctc caa tcc gcc gag gtg ttt	768		
	Ser Lys Gly Lys Asn Gly Leu Ala Pro Leu Gln Ser Ala Glu Val Phe			
	245 250 255			

	gac cca agg aca gga att tgg gtg gga ggg gcc ctg aca ctc tcc gtc	816
	Asp Pro Arg Thr Gly Ile Trp Val Gly Gly Ala Leu Thr Leu Ser Val	
	260 265 270	
5	tcg aaa ggg cca agc tct acc agc tgc ctc ttg gtt gag ctg gtg aag	864
	Ser Lys Gly Pro Ser Ser Thr Ser Cys Leu Leu Val Glu Leu Val Lys	
	275 280 285	
10	ccc att gcg aca gga atg acc tct ttg gga ggc aag ctt tat gtt ctt	912
	Pro Ile Ala Thr Gly Met Thr Ser Leu Gly Gly Lys Leu Tyr Val Leu	
	290 295 300	
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	Gln Ser Leu Tyr Ser Gly Pro Phe Phe Val Asp Val Gly Gly Glu Ile	
	305 310 315 320	
20	ttt gat ccg gag aca aat tca tgg gcg gaa atg cct gta gga atg ggc	1008
	Phe Asp Pro Glu Thr Asn Ser Trp Ala Glu Met Pro Val Gly Met Gly	
	325 330 335	
25	gag ggc tgg cca gcg agg cag gct ggt acg aag tta agt gct gtc ata	1056
	Glu Gly Trp Pro Ala Arg Gln Ala Gly Thr Lys Leu Ser Ala Val Ile	
	340 345 350	
30	gat ggg gac ttg tat gct ttg gag cca tca act tct ttt gat aga ggt	1104
	Asp Gly Asp Leu Tyr Ala Leu Glu Pro Ser Thr Ser Phe Asp Arg Gly	
	355 360 365	
35	aag atc aag att tat gat cct cag gag gat gct tgg aag gtt gcc att	1152
	Lys Ile Lys Ile Tyr Asp Pro Gln Glu Asp Ala Trp Lys Val Ala Ile	
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	Gly Gln Val Pro Val Gly Asp Phe Ala Glu Ser Glu Cys Pro Tyr Leu	
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	Leu Ala Gly Phe Leu Gly Lys Leu Asn Leu Ile Ile Lys Asp Val Asp	
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	Ser Lys Ile Asn Ile Met Gln Thr Asp Val Leu Lys Pro Val Glu Leu	
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	Ser Ala Pro Gly Asn Gly Pro Thr Cys Gln Asn Gln Leu Phe Ser	
	435 440 445	
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	Glu Gln Glu Thr Asn Leu Trp Lys Val Ile Val Ser Lys Asn Leu Ala	
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10 Leu Pro Asp Glu Ile Ser Leu Gln Ile Leu Ala Arg Met Pro Arg Met
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15 Gly Tyr Leu Asn Ala Lys Met Val Ser Arg Ser Trp Lys Ala Ala Ile
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25 Asn Ala Phe Asp Pro Val Cys Gly Gln Trp Gln Arg Leu Pro Leu Met
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30 Pro Gly Ile Ser His Gly Gly Glu Cys Lys Arg Gly Ile Pro Gly Leu
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35 Trp Leu Gly Asp Leu Leu Ser Ala Gly Ile Arg Val Ser Asp Val Ile
 145 150 155 160

Arg Gly Trp Leu Gly Gln Arg Asp Ser Leu Asp Arg Leu Pro Phe Cys
 165 170 175

40 Gly Cys Ala Ile Gly Thr Val Asn Gly Cys Ile Tyr Val Leu Gly Gly
 180 185 190

45 Phe Ser Arg Gly Ser Ala Met Lys Cys Val Trp Arg Tyr Asp Pro Phe
 195 200 205

50 Val Asn Ala Trp Gln Glu Val Ser Ser Met Ser Thr Gly Arg Ala Phe
 210 215 220

55 Cys Lys Ala Ser Leu Leu Asn Asn Lys Leu Tyr Val Val Gly Gly Val
 225 230 235 240

Ser Lys Gly Lys Asn Gly Leu Ala Pro Leu Gln Ser Ala Glu Val Phe
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60 Asp Pro Arg Thr Gly Ile Trp Val Gly Gly Ala Leu Thr Leu Ser Val
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65 Ser Lys Gly Pro Ser Ser Thr Ser Cys Leu Leu Val Glu Leu Val Lys
 275 280 285

Pro Ile Ala Thr Gly Met Thr Ser Leu Gly Gly Lys Leu Tyr Val Leu
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10 Phe Asp Pro Glu Thr Asn Ser Trp Ala Glu Met Pro Val Gly Met Gly
 325 330 335

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 340 345 350

20 Asp Gly Asp Leu Tyr Ala Leu Glu Pro Ser Thr Ser Phe Asp Arg Gly
 355 360 365

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 370 375 380

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30 Leu Ala Gly Phe Leu Gly Lys Leu Asn Leu Ile Ile Lys Asp Val Asp
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35 Ser Lys Ile Asn Ile Met Gln Thr Asp Val Leu Lys Pro Val Glu Leu
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 Leu Val Asp Tyr Trp Gly Gly Lys Arg Val Met Ala Tyr Gly Val Ala
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	50 55 60	
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	65 70 75 80	
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	85 90 95	
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	100 105 110	
25	gga att ttt gga cca ttt gtg ata ttt gga tta ttt gga ttt cta tgg Gly Ile Phe Gly Pro Phe Val Ile Phe Gly Leu Phe Gly Phe Leu Trp	384
	115 120 125	
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	130 135 140	
35	caa ata tca gca cat gaa cta gat tat ata acc agg ggt cag aaa ttg Gln Ile Ser Ala His Glu Leu Asp Tyr Ile Thr Arg Gly Gln Lys Leu	480
	145 150 155 160	
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	165 170 175	
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	180 185 190	
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	195 200 205	
55	tat ttc aaa aca ata tat cat gtt aat ctg aga gaa gct gca tgg ttt Tyr Phe Lys Thr Ile Tyr His Val Asn Leu Arg Glu Ala Ala Trp Phe	672
	210 215 220	
60	agt gca ctc ccc tgg gtc atg atg gca gtt tta ggc tat gtt gct ggt Ser Ala Leu Pro Trp Val Met Met Ala Val Leu Gly Tyr Val Ala Gly	720
	225 230 235 240	
65	gtt gta tca gac agg ctt atc caa aat ggt aca agc atc act ttg act Val Val Ser Asp Arg Leu Ile Gln Asn Gly Thr Ser Ile Thr Leu Thr	768
	245 250 255	
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	260 265 270	
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	275 280 285	
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	290 295 300	
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20	Ser Ala Leu Pro Trp Val Met Met Ala Val Leu Gly Tyr Val Ala Gly 225 230 235 240		
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30	Arg Lys Ile Met Gln Thr Ile Gly Phe Val Gly Pro Gly Val Ala Leu 260 265 270		
35	Leu Gly Leu Asn Ala Ala Lys Ser Pro Val Ile Ala Ser Ala Trp Leu 275 280 285		
40	Thr Ile Ala Val Gly Leu Lys Ser Phe Gly His Ser Gly Phe Leu Val 290 295 300		
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55	Gly Phe Phe Val Asp Arg Met Gly Ser Phe Arg Gly Phe Leu Ile Leu 340 345 350		
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	Thr Arg Ala Asp Gly Thr Glu Cys Glu Arg Tyr Phe Ser Ala Pro Val							
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	Ile Ala Phe Gly Val Phe Leu Leu Leu Val Ser Leu Ala Gly Leu Val							
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20	ggc gcc tgc tgc cgc gtc aac tgc ctc ctc tgg ttc tac ctc gtc gcc							240
	Gly Ala Cys Cys Arg Val Asn Cys Leu Leu Trp Phe Tyr Leu Val Ala							
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	Val Val Thr Asn Lys Gly Ala Gly Glu Ala Val Ser Gly Arg Gly Tyr							
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	Lys Glu Tyr Arg Leu Gly Asp Tyr Ser Asn Trp Leu Gln Lys Arg Met							
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40	gag aac agc aag aac tgg aac agg atc agg agc tgc ctc cag gac tcc							432
	Glu Asn Ser Lys Asn Trp Asn Arg Ile Arg Ser Cys Leu Gln Asp Ser							
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	Pro Thr Asn Ser Ser Asp Pro Asp Cys Asn Thr Trp Val Asp Asp Gly							
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65	acg cag ctg tgc tac aac tgc cag tgc tgc aag gcc ggc gcg gtg gcg							672
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	Asn Asn Arg Arg Asp Asn Arg Gly Ala Tyr Arg Gly Ala Ala Trp Lys							
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 35 Met Phe Val Leu Ile Val Val Leu Phe Cys Phe Thr Val Phe Ala Phe
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	Ile Gln Lys Arg Ser Gly Asp His Arg Ala Gln Asp Ile Leu Arg Leu	
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	Met Thr Thr Tyr Pro Ser Leu Arg Val Ala Tyr Ile Asp Glu Val Glu	
	210 215 220	
15	gag cca agc aaa gac agg aac aag aag ata gaa aag gtt tac tac tca	720
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	225 230 235 240	
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25	ctt gat cag gac ata tac aga ata aag cta cca ggt aat gca atg cta	816
	Leu Asp Gln Asp Ile Tyr Arg Ile Lys Leu Pro Gly Asn Ala Met Leu	
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	Gly Glu Gly Leu Gln Thr Ile Asp Met Asn Gln Glu His Tyr Met Glu	
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75	cat cat gaa tac atg caa gtt ggc aag ggg aga gat gtg ggt ctc aat	1296
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	Gln Ile Ser Leu Phe Glu Ala Lys Ile Ala Asn Gly Asn Gly Glu Gln	
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	Arg	Met	Leu	Ser	Cys	Tyr	Tyr	Thr	Thr	Ile	Gly	Phe	Tyr	Phe	Ser	Thr	
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	Ile	His	Asn	Glu	Pro	Leu	Gln	Val	Ala	Leu	Ala	Ser	Gln	Ser	Phe	Val	
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40	cct gtt gta tcc caa gtt ctt ggt gga gct ggg gct cgt cct gct ggt Pro Val Val Ser Gln Val Leu Gly Gly Ala Gly Ala Arg Pro Ala Ala Gly 225 230 235 240			720
45	aca aat agt gga caa tcc aga ttg cag cct cgg cgc agt gac atg aga Thr Asn Ser Gly Gln Ser Arg Leu Gln Pro Arg Arg Ser Asp Met Arg 245 250 255			768
50	gtg gat gat gct tca gat tat gga aat tct cag att gat cta cac caa Val Asp Asp Ala Ser Asp Tyr Gly Asn Ser Gln Ile Asp Leu His Gln 260 265 270			816
55	gct cgt gaa cac att gag caa cat gac tcc ccc agg gat atc ttc ggt Ala Arg Glu His Ile Glu Gln His Asp Ser Pro Arg Asp Ile Phe Gly 275 280 285			864
60	gcg gtc ctc gaa act gct gca cag gct tat ggt gaa gat gag agt att Ala Val Leu Glu Thr Ala Ala Gln Ala Tyr Gly Glu Asp Glu Ser Ile 290 295 300			912
65	gag gac atg ctt gaa gag ctt gtc agt gac cca gaa ctt aca gat gac Glu Asp Met Leu Glu Glu Leu Val Ser Asp Pro Glu Leu Thr Asp Asp 305 310 315 320			960
70	tac ctg aaa ctt ctg ctc caa caa gtt cgc cag agg ata cag tcg gca Tyr Leu Lys Leu Leu Leu Gln Gln Val Arg Gln Arg Ile Gln Ser Ala 325 330 335			1008
75	tct caa tcc ggg aac cag tct tga Ser Gln Ser Gly Asn Gln Ser 340			1032
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<400> 28

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5 Thr Cys Thr Asp Asp Ile Ser Val Asn Arg Ser Ala Glu Asn Ser Ser
 20 25 30

10 Gln Lys Asn Ile Pro Leu Asp Gly Val Ser Ala Gln Ser Ile Lys Pro
 35 40 45

15 Ser Ala Ser Ser Arg Ser Glu Pro Val Gly Leu Gly Gly Gly Leu Gln
 50 55 60

20 Pro Lys Arg Arg Ser Arg Thr Ala Lys Pro Pro Gly Ser Ser Ser Asp
 65 70 75 80

25 Thr Gly Glu Val Val Asn Ser Ser Arg Ile Ser Asn Ser Gln Asn Ala
 85 90 95

30 Val Ser Met Gly Gln Gln Val Leu Gln Ala Leu Ala Ser Gln Asn Thr
 100 105 110

35 Asn Val Asn Arg Ser His Val Thr Asp Ser Pro Leu Pro Ser Thr Thr
 115 120 125

40 Ser Gln Phe Ser Gly Gly Met Pro Pro Arg Arg Gln Gly Gly Glu Gly
 130 135 140

45 Gln Val Asp Phe Gly Ser Met Ile Ser Ser Val Leu Asn Asn Pro Ala
 145 150 155 160

Phe Gly Asn Leu Leu Ser Asn Val Ala Glu Gln Thr Gly Met Gly Ser
 165 170 175

Ala Gly Asp Leu Arg Asn Met Val Glu Glu Cys Ala Gln Ser Pro Ala
 180 185 190

50 Ile Met Asp Thr Met Ser Asn Leu Val Gln Asn Val Asp Gly Ser Gly
 195 200 205

55 Arg Gly Gln Gly Gly Ile Asp Leu Ser Arg Met Met Gln Gln Met Met
 210 215 220

60 Pro Val Val Ser Gln Val Leu Gly Gly Ala Gly Ala Arg Pro Ala Gly
 225 230 235 240

65 Thr Asn Ser Gly Gln Ser Arg Leu Gln Pro Arg Arg Ser Asp Met Arg
 245 250 255

Val Asp Asp Ala Ser Asp Tyr Gly Asn Ser Gln Ile Asp Leu His Gln
 260 265 270

Ala Arg Glu His Ile Glu Gln His Asp Ser Pro Arg Asp Ile Phe Gly
 275 280 285
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Ala Val Leu Glu Thr Ala Ala Gln Ala Tyr Gly Glu Asp Glu Ser Ile
 290 295 300
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Glu Asp Met Leu Glu Glu Leu Val Ser Asp Pro Glu Leu Thr Asp Asp
 305 310 315 320
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Tyr Leu Lys Leu Leu Leu Gln Gln Val Arg Gln Arg Ile Gln Ser Ala
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Ser Gln Ser Gly Asn Gln Ser
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gcg ttc tcc ctc ttc gac acc gac ggc gac ggc cgg atc gcg ccg tcg 96
 Ala Phe Ser Leu Phe Asp Thr Asp Gly Asp Gly Arg Ile Ala Pro Ser
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gag ctc ggc gtc ctg atg cgc tcc ctc ggc ggg aac ccc acc cag gcg 144
 Glu Leu Gly Val Leu Met Arg Ser Leu Gly Gly Asn Pro Thr Gln Ala
 35 40 45
 50

cag ctc cgc gac atc gcc gcg cag gag aag ctc acc gcg ccc ttc gac 192
 Gln Leu Arg Asp Ile Ala Ala Gln Glu Lys Leu Thr Ala Pro Phe Asp
 50 55 60
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ttc ccg cgc ttc ctc gac ctc atg cgc gcc cac ctc cgc ccc gag ccc 240
 Phe Pro Arg Phe Leu Asp Leu Met Arg Ala His Leu Arg Pro Glu Pro
 65 70 75 80
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ttc gac cgc ccg ctc cgc gac gcc ttc cgc gtc ctc gac aag gac gcc 288
 Phe Asp Arg Pro Leu Arg Asp Ala Phe Arg Val Leu Asp Lys Asp Ala
 85 90 95
 65

tcc ggc acc gtc tcc gtc gcc gat ctc cgc cac gtc ctc acc tcc atc 336
 Ser Gly Thr Val Ser Val Ala Asp Leu Arg His Val Leu Thr Ser Ile
 100 105 110
 70

ggc gag aag ctc gag ccc cac gag ttc gac gag tgg atc cgc gag gtc 384
 Gly Glu Lys Leu Glu Pro His Glu Phe Asp Glu Trp Ile Arg Glu Val
 115 120 125
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gac gtc gcc ccc gac ggc acc atc cgc tac gac gac ttc atc cgc cgc 432
 Asp Val Ala Pro Asp Gly Thr Ile Arg Tyr Asp Asp Phe Ile Arg Arg
 130 135 140
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atc gtc gcc aaa taa
 Ile Val Ala Lys
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 35 40 45
 25 Gln Leu Arg Asp Ile Ala Ala Gln Glu Lys Leu Thr Ala Pro Phe Asp
 50 55 60
 30 Phe Pro Arg Phe Leu Asp Leu Met Arg Ala His Leu Arg Pro Glu Pro
 65 70 75 80
 35 Phe Asp Arg Pro Leu Arg Asp Ala Phe Arg Val Leu Asp Lys Asp Ala
 85 90 95
 Ser Gly Thr Val Ser Val Ala Asp Leu Arg His Val Leu Thr Ser Ile
 100 105 110
 40 Gly Glu Lys Leu Glu Pro His Glu Phe Asp Glu Trp Ile Arg Glu Val
 115 120 125
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 130 135 140
 50 Ile Val Ala Lys
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5	gac ggc ttc att tca tgg ctg cgc gga aag ttc gcg gcg gcc aac gcc Asp Gly Phe Ile Ser Trp Leu Arg Gly Lys Phe Ala Ala Asn Ala 35 40 45	144
10	atc atc gac ctg ctg ctg ctc cam cty cgs tcc gtc ggc gag ccc ggg Ile Ile Asp Leu Leu Leu Leu Xaa Xaa Arg Ser Val Gly Glu Pro Gly 50 55 60	192
15	gag ttc gag cac gtc gcc gcc gcg gtg cag cag cgg cgc cac cac tgg Glu Phe Glu His Val Ala Ala Ala Val Gln Gln Arg Arg His His Trp 65 70 75 80	240
20	gcg ccc gtg atc cac atg cag cag ttc ttc ccc gtc ggc gac gtc gcg Ala Pro Val Ile His Met Gln Gln Phe Phe Pro Val Gly Asp Val Ala 85 90 95	288
25	tac gcg ctc cag cag gcc ggg tkg cgc cgc cgc gcg ccg ccg cac cac Tyr Ala Leu Gln Ala Gly Xaa Arg Arg Arg Ala Pro Pro His His 100 105 110	336
30	cag cag cag ggc ccc ggc gcc tcg ccg tcc ccg ccg ccc cyt ccc ccg Gln Gln Gln Gly Pro Gly Ala Ser Pro Ser Pro Pro Pro Xaa Pro Pro 115 120 125	384
35	cgc ggc cgc ccc tcg ttc tcg gcg tcc cac tcg cac cat cgc cac ggt Arg Gly Arg Pro Ser Phe Ser Ala Ser His Ser His His Arg His Gly 130 135 140	432
40	ggc cac cat cat cgc tcc gat tcg gtg cgc ggc ggc ggc act ggt gcg Gly His His His Arg Ser Asp Ser Val Arg Gly Gly Gly Thr Gly Ala 145 150 155 160	480
45	acg gct gga tcc gat aaa gat gga cgt gaa gtt cat aac aag gaa gag Thr Ala Gly Ser Asp Lys Asp Gly Arg Glu Val His Asn Lys Glu Glu 165 170 175	528
50	aaa gga atg aag gaa gca gag aat gtg gtt gaa gct aaa agc tca cag Lys Gly Met Lys Glu Ala Glu Asn Val Val Glu Ala Lys Ser Ser Gln 180 185 190	576
55	ttg gag tct ctt gtt tct cat gaa ggt gaa aaa act cct agg ccg caa Leu Glu Ser Leu Val Ser His Glu Gly Glu Lys Thr Pro Arg Pro Gln 195 200 205	624
60	gct gtt gct gaa gga agc agt aaa gtg gtt cca act cct gtg gag tat Ala Val Ala Glu Gly Ser Ser Lys Val Val Pro Thr Pro Val Glu Tyr 210 215 220	672
65	acg gtc aat gac att att gat ggc aag acg gtt aat gct gtt gaa ggg Thr Val Asn Asp Ile Ile Asp Gly Lys Thr Val Asn Ala Val Glu Gly 225 230 235 240	720
70	ctt aag gtt tat gaa ggg ttg gta aat gag aat gag aaa aac aag att Leu Lys Val Tyr Glu Gly Leu Val Asn Glu Asn Glu Lys Asn Lys Ile 245 250 255	768
75	ctc tct tta ctt aat gaa aca aaa gct tct ttt cgt cga gga ggg ctt Leu Ser Leu Leu Asn Glu Thr Lys Ala Ser Phe Arg Arg Gly Gly Leu 260 265 270	816
80	gaa gct ggg cag act gta ata att gga aaa aga cca atg aag ggt cat Glu Ala Gly Gln Thr Val Ile Ile Gly Lys Arg Pro Met Lys Gly His 275 280 285	864

	ggg agg gaa att att cag ctg ggc att cct atc gtt gaa ggc cct cct Gly Arg Glu Ile Ile Gln Leu Gly Ile Pro Ile Val Glu Gly Pro Pro	912
	290 295 300	
5	gaa gat gac tat cca aga gag aca aaa gtg gag gct gtt cct gga ttg Glu Asp Asp Tyr Pro Arg Glu Thr Lys Val Glu Ala Val Pro Gly Leu	960
	305 310 315 320	
10	ctg cat gat ctg ttt gac cgc ttg tgt cag aag gaa att ata cca aca Leu His Asp Leu Phe Asp Arg Leu Cys Gln Lys Glu Ile Ile Pro Thr	1008
	325 330 335	
15	aaa cca gat tat tgt gtt att gat tac tac aat gag ggg gat tat tct Lys Pro Asp Tyr Cys Val Ile Asp Tyr Tyr Asn Glu Gly Asp Tyr Ser	1056
	340 345 350	
20	cac cct cac caa tcc cct cct tgg tat ggt aga ccc ttt tgt aca ttc His Pro His Gln Ser Pro Pro Trp Tyr Gly Arg Pro Phe Cys Thr Phe	1104
	355 360 365	
25	tgc ctg aca gat tgt gac atg gtg ttc ggc cga gtt att tca gga gaa Cys Leu Thr Asp Cys Asp Met Val Phe Gly Arg Val Ile Ser Gly Glu	1152
	370 375 380	
30	cga ggt gat cat aga ggt cct ctg aag ctc ctt ctc tcg aca ggg tct Arg Gly Asp His Arg Gly Pro Leu Lys Leu Leu Leu Ser Thr Gly Ser	1200
	385 390 395 400	
35	ctt ctg gtg ttg cat ggg aag agt gct gat gtt gct aag cga gct att Leu Leu Val Leu His Gly Lys Ser Ala Asp Val Ala Lys Arg Ala Ile	1248
	405 410 415	
40	cct gct gca tgt aag cag cgg atc cta cta agc ttc ggg aag tct tta Pro Ala Ala Cys Lys Gln Arg Ile Leu Leu Ser Phe Gly Lys Ser Leu	1296
	420 425 430	
45	tcg aga aaa caa gta cca tct gaa agt gtt tca cgg ttt act acc ccg Ser Arg Lys Gln Val Pro Ser Glu Ser Val Ser Arg Phe Thr Thr Pro	1344
	435 440 445	
50	ttg aca cca cct cct atg ccc tgg ggt cct cca agg ccg gct aac atg Leu Thr Pro Pro Pro Met Trp Gly Pro Pro Arg Pro Ala Asn Met	1392
	450 455 460	
55	gcg cgt cat tct tca agc cct aaa cac ttt gga tat gcc cca aac agt Ala Arg His Ser Ser Ser Pro Lys His Phe Gly Tyr Ala Pro Asn Ser	1440
	465 470 475 480	
60	ggc gta ctt cca gcg ccg gcc att gga gcg cat cac att cct cca tca Gly Val Leu Pro Ala Pro Ala Ile Gly Ala His His Ile Pro Pro Ser	1488
	485 490 495	
65	gat gga atg cag cca ctc ttt gta gca cct gct cca gtt gct gct gca Asp Gly Met Gln Pro Leu Phe Val Ala Pro Ala Pro Val Ala Ala Ala	1536
	500 505 510	
70	gcc atg cct ttc cca tca cct gtt cct ttg cca aac tta acc aac agc Ala Met Pro Phe Pro Ser Pro Val Pro Leu Pro Asn Leu Thr Asn Ser	1584
	515 520 525	
75	ttg gat ggc aga agc tgc tcc aag gtc tgc tcc aca acg act ccc agt Leu Asp Gly Arg Ser Cys Ser Lys Val Cys Ser Thr Thr Thr Pro Ser	1632
	530 535 540	
80	tcc tgg cac ggg ggt ctt cct tcc tcc tgg atc ggg tca cgc act gcc Ser Trp His Gly Gly Leu Pro Ser Ser Trp Ile Gly Ser Arg Thr Ala	1680
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tca tca gat gat
Ser Ser Asp Asp

1692

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<211> 564
<212> PRT
<213> Oryza sativa

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<223> The 'Xaa' at location 23 stands for Arg, or Lys.

15
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<222> (56)..(56)
<223> The 'Xaa' at location 56 stands for Gln, or His.

20
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<221> misc_feature
<222> (57)..(57)
<223> The 'Xaa' at location 57 stands for Leu.

25
<220>
<221> misc_feature
<222> (104)..(104)
<223> The 'Xaa' at location 104 stands for Trp, or Leu.

30
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<221> misc_feature
<222> (126)..(126)
<223> The 'Xaa' at location 126 stands for Pro, or Leu.

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Met Ala Ser Ala Ala Val Ile Pro Ser Ser Ala Pro Gly Ala Ala Ala
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Ala Gly Ala Ala Ala Val Xaa Ser Ala Gly Trp Val Val Asp Glu Arg
20 25 30

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Asp Gly Phe Ile Ser Trp Leu Arg Gly Lys Phe Ala Ala Ala Asn Ala
35 40 45

50

Ile Ile Asp Leu Leu Leu Leu Xaa Xaa Arg Ser Val Gly Glu Pro Gly
50 55 60

55

Glu Phe Glu His Val Ala Ala Ala Val Gln Gln Arg Arg His His Trp
65 70 75 80

60

Ala Pro Val Ile His Met Gln Gln Phe Phe Pro Val Gly Asp Val Ala
85 90 95

65

Tyr Ala Leu Gln Gln Ala Gly Xaa Arg Arg Arg Ala Pro Pro His His
100 105 110

65

Gln Gln Gln Gly Pro Gly Ala Ser Pro Ser Pro Pro Pro Xaa Pro Pro
115 120 125

Arg Gly Arg Pro Ser Phe Ser Ala Ser His Ser His His Arg His Gly
 130 135 140
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 Gly His His His Arg Ser Asp Ser Val Arg Gly Gly Gly Thr Gly Ala
 145 150 155 160
 10 Thr Ala Gly Ser Asp Lys Asp Gly Arg Glu Val His Asn Lys Glu Glu
 165 170 175
 15 Lys Gly Met Lys Glu Ala Glu Asn Val Val Glu Ala Lys Ser Ser Gln
 180 185 190
 20 Leu Glu Ser Leu Val Ser His Glu Gly Glu Lys Thr Pro Arg Pro Gln
 195 200 205
 Ala Val Ala Glu Gly Ser Ser Lys Val Val Pro Thr Pro Val Glu Tyr
 210 215 220
 25 Thr Val Asn Asp Ile Ile Asp Gly Lys Thr Val Asn Ala Val Glu Gly
 225 230 235 240
 30 Leu Lys Val Tyr Glu Gly Leu Val Asn Glu Asn Glu Lys Asn Lys Ile
 245 250 255
 35 Leu Ser Leu Leu Asn Glu Thr Lys Ala Ser Phe Arg Arg Gly Gly Leu
 260 265 270
 40 Glu Ala Gly Gln Thr Val Ile Ile Gly Lys Arg Pro Met Lys Gly His
 275 280 285
 Gly Arg Glu Ile Ile Gln Leu Gly Ile Pro Ile Val Glu Gly Pro Pro
 290 295 300
 45 Glu Asp Asp Tyr Pro Arg Glu Thr Lys Val Glu Ala Val Pro Gly Leu
 305 310 315 320
 50 Leu His Asp Leu Phe Asp Arg Leu Cys Gln Lys Glu Ile Ile Pro Thr
 325 330 335
 55 Lys Pro Asp Tyr Cys Val Ile Asp Tyr Tyr Asn Glu Gly Asp Tyr Ser
 340 345 350
 60 His Pro His Gln Ser Pro Pro Trp Tyr Gly Arg Pro Phe Cys Thr Phe
 355 360 365
 Cys Leu Thr Asp Cys Asp Met Val Phe Gly Arg Val Ile Ser Gly Glu
 370 375 380
 65 Arg Gly Asp His Arg Gly Pro Leu Lys Leu Leu Leu Ser Thr Gly Ser
 385 390 395 400

Leu Leu Val Leu His Gly Lys Ser Ala Asp Val Ala Lys Arg Ala Ile
 405 410 415
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 Pro Ala Ala Cys Lys Gln Arg Ile Leu Leu Ser Phe Gly Lys Ser Leu
 420 425 430
 10 Ser Arg Lys Gln Val Pro Ser Glu Ser Val Ser Arg Phe Thr Thr Pro
 435 440 445
 15 Leu Thr Pro Pro Pro Met Pro Trp Gly Pro Pro Arg Pro Ala Asn Met
 450 455 460
 20 Ala Arg His Ser Ser Ser Pro Lys His Phe Gly Tyr Ala Pro Asn Ser
 465 470 475 480
 Gly Val Leu Pro Ala Pro Ala Ile Gly Ala His His Ile Pro Pro Ser
 485 490 495
 25 Asp Gly Met Gln Pro Leu Phe Val Ala Pro Ala Pro Val Ala Ala Ala
 500 505 510
 30 Ala Met Pro Phe Pro Ser Pro Val Pro Leu Pro Asn Leu Thr Asn Ser
 515 520 525
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 40 Ser Trp His Gly Gly Leu Pro Ser Ser Trp Ile Gly Ser Arg Thr Ala
 545 550 555 560
 Ser Ser Asp Asp
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 60 gag cac gtc ggc ccc tac gcg ctc tcc gag ctg cga gaa cat ttt gct 96
 Glu His Val Gly Pro Tyr Ala Leu Ser Glu Leu Arg Glu His Phe Ala
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 65 aat ggg tac atc agt gag agc tca atg ctc tgg gca gaa ggg agg agt 144
 Asn Gly Tyr Ile Ser Glu Ser Ser Met Leu Trp Ala Glu Gly Arg Ser
 35 40 45

	gaa tgg atg cca ttg tgg tgg att cct gac cta ctt gcg gtg gtc aca	192
	Glu Trp Met Pro Leu Ser Ser Ile Pro Asp Leu Leu Ala Val Val Thr	
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5	aaa aag gat caa cct gat gaa gga att gaa gat gat ttc gat aaa ttt	240
	Lys Lys Asp Gln Pro Asp Glu Gly Ile Glu Asp Asp Phe Asp Lys Phe	
	65 70 75 80	
10	caa aag gag gtt ata gaa gct gag gca gag gtg gaa gcc tcg aca gac	288
	Gln Lys Glu Val Ile Glu Ala Glu Ala Glu Val Glu Ala Ser Thr Asp	
	85 90 95	
15	aag gct gca gat aac gac ata aac caa gaa cat ggg gcc gat gat cct	336
	Lys Ala Ala Asp Asn Asp Ile Asn Gln Glu His Gly Ala Asp Asp Pro	
	100 105 110	
	gat gac cgg cca gca acc cca cca gat ggc gag gac gaa ttt act gat	384
	Asp Asp Arg Pro Ala Thr Pro Pro Asp Gly Glu Asp Glu Phe Thr Asp	
	115 120 125	
20	gat gat ggt act gtt tac aag tgg gat cgt gtc ctg agg gca tgg gtt	432
	Asp Asp Gly Thr Val Tyr Lys Trp Asp Arg Val Leu Arg Ala Trp Val	
	130 135 140	
25	cct caa gat gac cta gaa ggc aaa aat gac aac tat gaa gtt gaa gac	480
	Pro Gln Asp Asp Leu Glu Gly Lys Asn Asp Asn Tyr Glu Val Glu Asp	
	145 150 155 160	
30	atg act ttt gca cat gag gaa gaa gtt ttc caa gca cca gat att gct	528
	Met Thr Phe Ala His Glu Glu Glu Val Phe Gln Ala Pro Asp Ile Ala	
	165 170 175	
35	ggg tca acc aca tta gaa gaa aac aat gtt tct gcg gaa att gaa atc	576
	Gly Ser Thr Thr Leu Glu Glu Asn Asn Val Ser Ala Glu Ile Glu Ile	
	180 185 190	
	aaa gaa cca cca aag gta gaa aag aga gca cat aag aag cgg aag tct	624
	Lys Glu Pro Pro Lys Val Glu Lys Arg Ala His Lys Lys Arg Lys Ser	
	195 200 205	
40	tct gaa aag cca gcc gat aaa aag gaa gct tac aaa cct cca gat agt	672
	Ser Glu Lys Pro Ala Asp Lys Lys Glu Ala Tyr Lys Pro Pro Asp Ser	
	210 215 220	
45	tgg gtt gat ctc aaa gtt aac aca cat gtc tac gtt act ggt ttg cct	720
	Trp Val Asp Leu Lys Val Asn Thr His Val Tyr Val Thr Gly Leu Pro	
	225 230 235 240	
50	gat gat gtc aca gct gag gag att gtg gag gta ttt tcc aaa tgt gga	768
	Asp Asp Val Thr Ala Glu Glu Ile Val Glu Val Phe Ser Lys Cys Gly	
	245 250 255	
55	att ata aag gag gac cca gag aca aga aaa ccc cga gta aaa atc tat	816
	Ile Ile Lys Glu Asp Pro Glu Thr Arg Lys Pro Arg Val Lys Ile Tyr	
	260 265 270	
	act gac aga gaa aca ggc aga aag aaa ggt gat gcg cta gtg	858
	Thr Asp Arg Glu Thr Gly Arg Lys Lys Gly Asp Ala Leu Val	
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10	Asn	Gly	Tyr	Ile	Ser	Glu	Ser	Ser	Met	Leu	Trp	Ala	Glu	Gly	Arg	Ser	
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15	Glu	Trp	Met	Pro	Leu	Ser	Ser	Ile	Pro	Asp	Leu	Leu	Ala	Val	Val	Thr	
		50					55					60					
20	Lys	Lys	Asp	Gln	Pro	Asp	Glu	Gly	Ile	Glu	Asp	Asp	Phe	Asp	Lys	Phe	
	65					70					75					80	
25	Gln	Lys	Glu	Val	Ile	Glu	Ala	Glu	Ala	Glu	Val	Glu	Ala	Ser	Thr	Asp	
					85					90					95		
30	Lys	Ala	Ala	Asp	Asn	Asp	Ile	Asn	Gln	Glu	His	Gly	Ala	Asp	Asp	Pro	
				100					105					110			
35	Asp	Asp	Arg	Pro	Ala	Thr	Pro	Pro	Asp	Gly	Glu	Asp	Glu	Phe	Thr	Asp	
			115					120					125				
40	Asp	Asp	Gly	Thr	Val	Tyr	Lys	Trp	Asp	Arg	Val	Leu	Arg	Ala	Trp	Val	
			130				135					140					
45	Pro	Gln	Asp	Asp	Leu	Glu	Gly	Lys	Asn	Asp	Asn	Tyr	Glu	Val	Glu	Asp	
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50	Met	Thr	Phe	Ala	His	Glu	Glu	Glu	Val	Phe	Gln	Ala	Pro	Asp	Ile	Ala	
					165					170					175		
55	Gly	Ser	Thr	Thr	Leu	Glu	Glu	Asn	Asn	Val	Ser	Ala	Glu	Ile	Glu	Ile	
				180				185						190			
60	Lys	Glu	Pro	Pro	Lys	Val	Glu	Lys	Arg	Ala	His	Lys	Lys	Arg	Lys	Ser	
			195					200					205				
65	Ser	Glu	Lys	Pro	Ala	Asp	Lys	Lys	Glu	Ala	Tyr	Lys	Pro	Pro	Asp	Ser	
		210					215					220					
70	Trp	Val	Asp	Leu	Lys	Val	Asn	Thr	His	Val	Tyr	Val	Thr	Gly	Leu	Pro	
	225					230					235					240	
75	Asp	Asp	Val	Thr	Ala	Glu	Glu	Ile	Val	Glu	Val	Phe	Ser	Lys	Cys	Gly	
					245					250					255		
80	Ile	Ile	Lys	Glu	Asp	Pro	Glu	Thr	Arg	Lys	Pro	Arg	Val	Lys	Ile	Tyr	
				260					265					270			

	Thr	Asp	Arg	Glu	Thr	Gly	Arg	Lys	Lys	Gly	Asp	Ala	Leu	Val	
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	1			5					10				15		
20	gcg ttg gcg gtg gcg agc gcc ttc att gat gaa gcg gcg gct gct ggc														96
	Ala Leu Ala Val Ala Ser Ala Phe Ile Asp Glu Ala Ala Ala Ala Gly														
			20					25				30			
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	Arg Gly Leu Gly His Gly Ala Arg Phe Met Ser Lys Gln Gly Arg Val														
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<220>
<221> CDS
<222> (1)..(1557)

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Met Val Val Leu Ala Ala Ser Ile Ile Ser Lys Ser Gly Lys Ala Leu
1 5 10 15

10
gtt tcg aga caa ttt gtt gac atg tcc cgg ata agg atc gat ggg ctg      96
Val Ser Arg Gln Phe Val Asp Met Ser Arg Ile Arg Ile Asp Gly Leu
20 25 30

15
ctt gca gca ttt ccg aag ctg gtc gga agt gga aag caa cat act tat      144
Leu Ala Ala Phe Pro Lys Leu Val Gly Ser Gly Lys Gln His Thr Tyr
35 40 45

20
gtt gag act gaa aat gtt cgt tat gtc tat caa cca att gaa gca ctg      192
Val Glu Thr Glu Asn Val Arg Tyr Val Tyr Gln Pro Ile Glu Ala Leu
50 55 60

25
tat ttg ctt ctc atc aca aat aag caa agt aac att ctt gaa gat ctg      240
Tyr Leu Leu Leu Ile Thr Asn Lys Gln Ser Asn Ile Leu Glu Asp Leu
65 70 75 80

gat act tta agg cta ctc tcc aag ctt ata cct gaa tat gct ccc tct      288
Asp Thr Leu Arg Leu Leu Ser Lys Leu Ile Pro Glu Tyr Ala Pro Ser
85 90 95

30
ttg gat gaa gag ggt gtc tgt aag gca gca ttc gag ctt ctg ttt gcc      336
Leu Asp Glu Gly Val Cys Lys Ala Ala Phe Glu Leu Leu Phe Ala
100 105 110

35
ttt att gaa gcc att tct ctt gga aac aaa gag aac gta act gtt gca      384
Phe Ile Glu Ala Ile Ser Leu Gly Asn Lys Glu Asn Val Thr Val Ala
115 120 125

40
caa gtt aaa caa tac tgt gaa atg gag agc cat gaa gaa aag ctg cac      432
Gln Val Lys Gln Tyr Cys Glu Met Glu Ser His Glu Glu Lys Leu His
130 135 140

45
aag ctg gtt atg caa agc aaa ata aat gaa act aag gat gtc atg agg      480
Lys Leu Val Met Gln Ser Lys Ile Asn Glu Thr Lys Asp Val Met Arg
145 150 155 160

agg aaa gtc act gag att gag aaa agc aag act gat aga ggg aag cct      528
Arg Lys Val Thr Glu Ile Glu Lys Ser Lys Thr Asp Arg Gly Lys Pro
165 170 175

50
gac aag gga gga ttt gga tcc ttg aga act cca aac agc ttc agt gac      576
Asp Lys Gly Gly Phe Gly Ser Leu Arg Thr Pro Asn Ser Phe Ser Asp
180 185 190

55
atg ggc att aga ggt ggt ggt cca ggg ggc gat cct ata ttt ggt gat      624
Met Gly Ile Arg Gly Gly Gly Pro Gly Gly Asp Pro Ile Phe Gly Asp
195 200 205

60
atg gac tcg ttc acc cac aag gcc aaa ggc cgc cca tct gct cct gct      672
Met Asp Ser Phe Thr His Lys Ala Lys Gly Arg Pro Ser Ala Pro Ala
210 215 220

65
cct gca tct gct tct act aaa gtt cct ggt ggt atg aaa tta agc aaa      720
Pro Ala Ser Ala Ser Thr Lys Val Pro Gly Gly Met Lys Leu Ser Lys
225 230 235 240

gca cag aag aca aac cag ttc ctt gag tct ttg aaa gct gaa gga gaa      768
Ala Gln Lys Thr Asn Gln Phe Leu Glu Ser Leu Lys Ala Glu Gly Glu

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		245		250		255	
5	gtc att ttg gag gac act caa cca agt gca act caa tca agg tca tca	816					
	Val Ile Leu Glu Asp Thr Gln Pro Ser Ala Thr Gln Ser Arg Ser Ser						
		260		265		270	
10	tat atc cca cca agc gat cct atc aca gtg aca att gaa gag aag ctc	864					
	Tyr Ile Pro Pro Ser Asp Pro Ile Thr Val Thr Ile Glu Glu Lys Leu						
		275		280		285	
15	aat gtc act gtt aaa agg gat ggg gga gtt agc aat ttt gat att caa	912					
	Asn Val Thr Val Lys Arg Asp Gly Gly Val Ser Asn Phe Asp Ile Gln						
		290		295		300	
20	gga acc ctg gct ctc caa att ctg aat gac act gat ggt ttt att cag	960					
	Gly Thr Leu Ala Leu Ile Leu Asn Asp Thr Asp Gly Phe Ile Gln						
		305		310		315	320
25	tta cag att gag aac caa gat gta cct ggc ctt aac ttc aag aca cac	1008					
	Leu Gln Ile Glu Asn Gln Asp Val Pro Gly Leu Asn Phe Lys Thr His						
		325		330		335	
30	ccc aat atc aac aaa gag tta ttc aac agt caa caa att gtg ggg gca	1056					
	Pro Asn Ile Asn Lys Glu Leu Phe Asn Ser Gln Gln Ile Val Gly Ala						
		340		345		350	
35	aaa gat cca aac agg cct ttc ccc agt ggt caa aat gaa aca ccg ttg	1104					
	Lys Asp Pro Asn Arg Pro Phe Pro Ser Gly Gln Asn Glu Thr Pro Leu						
		355		360		365	
40	gtg aaa tgg aga atc cag gag ttg aat gag tca tct ctt cca ttg gca	1152					
	Val Lys Trp Arg Ile Gln Glu Leu Asn Glu Ser Ser Leu Pro Leu Ala						
		370		375		380	
45	gtg aac tgt tgg cct tcg gtg tcc gga aat gaa acc tat gtg aac att	1200					
	Val Asn Cys Trp Pro Val Ser Gly Asn Glu Thr Tyr Val Asn Ile						
		385		390		395	400
50	gaa tat gaa gct tca gag atg ttt gat ttg cac aat gtt gtc atc tct	1248					
	Glu Tyr Glu Ala Ser Glu Met Phe Asp Leu His Asn Val Val Ile Ser						
		405		410		415	
55	atc cct ctc ccc gca ctt agg gag gct cca ggt gtt agg cag ata gac	1296					
	Ile Pro Leu Pro Ala Leu Arg Glu Ala Pro Gly Val Arg Gln Ile Asp						
		420		425		430	
60	gga gaa tgg agg tat gac tca aga aat tca gtg ttg gag tgg tcc att	1344					
	Gly Glu Trp Arg Tyr Asp Ser Arg Asn Ser Val Leu Glu Trp Ser Ile						
		435		440		445	
65	att ctt gtt gat caa tca aac cgc agt ggt tct ttg gag ttc act gtc	1392					
	Ile Leu Val Asp Gln Ser Asn Arg Ser Gly Ser Leu Glu Phe Thr Val						
		450		455		460	
70	cct gca gct gat cca tca aca ttc ttc ccg ata tct gtt ggg ttt tct	1440					
	Pro Ala Ala Asp Pro Ser Thr Phe Phe Pro Ile Ser Val Gly Phe Ser						
		465		470		475	480
75	gca tca aat aca ttt agt gat ttg aag gtg acc gcc atc cgt ccg ctg	1488					
	Ala Ser Asn Thr Phe Ser Asp Leu Lys Val Thr Ala Ile Arg Pro Leu						
		485		490		495	
80	agg gaa ggt agc cca cca aag ttt tct cag agg aat cga ttg gtt act	1536					
	Arg Glu Gly Ser Pro Pro Lys Phe Ser Gln Arg Asn Arg Leu Val Thr						
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85	tat aac tac caa gtg gtt tga	1557					
	Tyr Asn Tyr Gln Val Val						

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5 <210> 42
 <211> 518
 <212> PRT
 <213> Oryza sativa

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 15 Val Ser Arg Gln Phe Val Asp Met Ser Arg Ile Arg Ile Asp Gly Leu
 20 25 30

 20 Leu Ala Ala Phe Pro Lys Leu Val Gly Ser Gly Lys Gln His Thr Tyr
 35 40 45

 25 Val Glu Thr Glu Asn Val Arg Tyr Val Tyr Gln Pro Ile Glu Ala Leu
 50 55 60

 Tyr Leu Leu Leu Ile Thr Asn Lys Gln Ser Asn Ile Leu Glu Asp Leu
 65 70 75 80

 30 Asp Thr Leu Arg Leu Leu Ser Lys Leu Ile Pro Glu Tyr Ala Pro Ser
 85 90 95

 35 Leu Asp Glu Glu Gly Val Cys Lys Ala Ala Phe Glu Leu Leu Phe Ala
 100 105 110

 40 Phe Ile Glu Ala Ile Ser Leu Gly Asn Lys Glu Asn Val Thr Val Ala
 115 120 125

 45 Gln Val Lys Gln Tyr Cys Glu Met Glu Ser His Glu Glu Lys Leu His
 130 135 140

 Lys Leu Val Met Gln Ser Lys Ile Asn Glu Thr Lys Asp Val Met Arg
 145 150 155 160

 50 Arg Lys Val Thr Glu Ile Glu Lys Ser Lys Thr Asp Arg Gly Lys Pro
 165 170 175

 55 Asp Lys Gly Gly Phe Gly Ser Leu Arg Thr Pro Asn Ser Phe Ser Asp
 180 185 190

 60 Met Gly Ile Arg Gly Gly Gly Pro Gly Gly Asp Pro Ile Phe Gly Asp
 195 200 205

 65 Met Asp Ser Phe Thr His Lys Ala Lys Gly Arg Pro Ser Ala Pro Ala
 210 215 220

 Pro Ala Ser Ala Ser Thr Lys Val Pro Gly Gly Met Lys Leu Ser Lys
 225 230 235 240

5	Ala	Gln	Lys	Thr	Asn	Gln	Phe	Leu	Glu	Ser	Leu	Lys	Ala	Glu	Gly	Glu
					245					250					255	
	Val	Ile	Leu	Glu	Asp	Thr	Gln	Pro	Ser	Ala	Thr	Gln	Ser	Arg	Ser	Ser
				260					265					270		
10	Tyr	Ile	Pro	Pro	Ser	Asp	Pro	Ile	Thr	Val	Thr	Ile	Glu	Glu	Lys	Leu
			275					280					285			
15	Asn	Val	Thr	Val	Lys	Arg	Asp	Gly	Gly	Val	Ser	Asn	Phe	Asp	Ile	Gln
		290					295					300				
20	Gly	Thr	Leu	Ala	Leu	Gln	Ile	Leu	Asn	Asp	Thr	Asp	Gly	Phe	Ile	Gln
	305					310					315					320
	Leu	Gln	Ile	Glu	Asn	Gln	Asp	Val	Pro	Gly	Leu	Asn	Phe	Lys	Thr	His
25					325					330					335	
	Pro	Asn	Ile	Asn	Lys	Glu	Leu	Phe	Asn	Ser	Gln	Gln	Ile	Val	Gly	Ala
				340					345					350		
30	Lys	Asp	Pro	Asn	Arg	Pro	Phe	Pro	Ser	Gly	Gln	Asn	Glu	Thr	Pro	Leu
			355					360					365			
35	Val	Lys	Trp	Arg	Ile	Gln	Glu	Leu	Asn	Glu	Ser	Ser	Leu	Pro	Leu	Ala
		370					375					380				
40	Val	Asn	Cys	Trp	Pro	Ser	Val	Ser	Gly	Asn	Glu	Thr	Tyr	Val	Asn	Ile
	385					390					395					400
	Glu	Tyr	Glu	Ala	Ser	Glu	Met	Phe	Asp	Leu	His	Asn	Val	Val	Ile	Ser
45					405					410					415	
	Ile	Pro	Leu	Pro	Ala	Leu	Arg	Glu	Ala	Pro	Gly	Val	Arg	Gln	Ile	Asp
				420					425					430		
50	Gly	Glu	Trp	Arg	Tyr	Asp	Ser	Arg	Asn	Ser	Val	Leu	Glu	Trp	Ser	Ile
			435					440					445			
55	Ile	Leu	Val	Asp	Gln	Ser	Asn	Arg	Ser	Gly	Ser	Leu	Glu	Phe	Thr	Val
		450					455					460				
	Pro	Ala	Ala	Asp	Pro	Ser	Thr	Phe	Phe	Pro	Ile	Ser	Val	Gly	Phe	Ser
60		465				470					475					480
	Ala	Ser	Asn	Thr	Phe	Ser	Asp	Leu	Lys	Val	Thr	Ala	Ile	Arg	Pro	Leu
					485					490					495	
65	Arg	Glu	Gly	Ser	Pro	Pro	Lys	Phe	Ser	Gln	Arg	Asn	Arg	Leu	Val	Thr
				500					505					510		

Tyr Asn Tyr Gln Val Val
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 10 <213> Oryza sativa
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 <221> CDS
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 1 5 10 15
 cca tca ccg tca ccg gtg gcg tcc ggc cgc ctc gtg gca ccg gct gtc 96
 Pro Ser Pro Ser Pro Val Ala Ser Gly Arg Leu Val Ala Pro Ala Val
 20 25 30
 ctc ggt ttc gcc ggg gcc ccg cgg ttc ccg acg ctg cgg gcc gcg cca 144
 Leu Gly Phe Ala Gly Ala Pro Arg Phe Pro Thr Leu Arg Ala Ala Pro
 35 40 45
 cgg cgg ctg acg gcg cgg gcg gtg gcc ggg gac gcc gag gac gag tkg 192
 Arg Arg Leu Thr Ala Arg Ala Val Ala Gly Asp Ala Glu Asp Glu Xaa
 50 55 60
 ggg aag gag ccg gcg gcg gac cag ggc ggt gcc gcc gcg gcg gtg gcc 240
 Gly Lys Glu Pro Ala Ala Asp Gln Gly Gly Ala Ala Ala Val Ala
 65 70 75 80
 gag gcg ccc gcg gat gtg ccg gtg acg agc gag gtc gcg gag ctc aag 288
 Glu Ala Pro Ala Asp Val Pro Val Thr Ser Glu Val Ala Glu Leu Lys
 85 90 95
 gcg aag ctg aag gag gcg ctg tac ggt acg gag cgc ggc ctg cgc gcg 336
 Ala Lys Leu Lys Glu Ala Leu Tyr Gly Thr Glu Arg Gly Leu Arg Ala
 100 105 110
 tcc agc gag acg cgc gcg gag gtg gtc gag ctc atc acg cag ctc gag 384
 Ser Ser Glu Thr Arg Ala Glu Val Glu Leu Ile Thr Gln Leu Glu
 115 120 125
 gcc cgc aac ccc acg ccg gcg ccc acc gag gcg ctc acc ctc ctc aac 432
 Ala Arg Asn Pro Thr Pro Ala Pro Thr Glu Ala Leu Thr Leu Leu Asn
 130 135 140
 ggc aag tgg atc ctc gcg tac acc tca ttt tca cag cta ttc cca cta 480
 Gly Lys Trp Ile Leu Ala Tyr Thr Ser Phe Ser Gln Leu Phe Pro Leu
 145 150 155 160
 ttg ggg tct ggt agt ttg cct cag ctt gtc aag gtg gaa gaa ata tca 528
 Leu Gly Ser Gly Ser Leu Pro Gln Leu Val Lys Val Glu Glu Ile Ser
 165 170 175
 caa act att gat tct gag aac ttc acg gtt cag aat tgc atc aag ttt 576
 Gln Thr Ile Asp Ser Glu Asn Phe Thr Val Gln Asn Cys Ile Lys Phe
 180 185 190
 tca gga cct tta gca aca act tca gtg tct acc aat gcc aaa ttt gaa 624
 Ser Gly Pro Leu Ala Thr Thr Ser Val Ser Thr Asn Ala Lys Phe Glu
 195 200 205

gtt cga agt ccc aaa cgt gta cag atc aaa ttt gat gaa ggc att atc 672
 Val Arg Ser Pro Lys Arg Val Gln Ile Lys Phe Asp Glu Gly Ile Ile
 210 215 220

5

ggc act cca caa ttg act gat tct att gta cta cct gag aag ttt gag 720
 Gly Thr Pro Gln Leu Thr Asp Ser Ile Val Leu Pro Glu Lys Phe Glu
 225 230 235 240

10

tta ttt ggg cag aat att gac ctg acc cca ttg aag ggc ata ttt tca 768
 Leu Phe Gly Gln Asn Ile Asp Leu Thr Pro Leu Lys Gly Ile Phe Ser
 245 250 255

15

tca att gaa aat gca gca tcc tca gtt gct aga acc atc tct ggt caa 816
 Ser Ile Glu Asn Ala Ala Ser Ser Val Ala Arg Thr Ile Ser Gly Gln
 260 265 270

20

cct cca cta aag ata cca att agg act gac aat gct gag tct tgg ttg 864
 Pro Pro Leu Lys Ile Pro Ile Arg Thr Asp Asn Ala Glu Ser Trp Leu
 275 280 285

25

ctc aca acc tac ctt gat gat gag ctt aga atc tcc aga ggt gat ggc 912
 Leu Thr Thr Tyr Leu Asp Asp Glu Leu Arg Ile Ser Arg Gly Asp Gly
 290 295 300

30

agc agc atc ttt gta ctg ttt aag gaa gga agc acc ctc cta tat taa 960
 Ser Ser Ile Phe Val Leu Phe Lys Glu Gly Ser Thr Leu Leu Tyr
 305 310 315

35

<210> 44
 <211> 319
 <212> PRT
 <213> Oryza sativa

40

<220>
 <221> misc_feature
 <222> (64)..(64)
 <223> The 'Xaa' at location 64 stands for Trp, or Leu.
 <400> 44

45

Met Ala Gly Ser Ser Ser Leu Ser Thr Leu Ser Leu Cys Thr Gln Ser
 1 5 10 15

50

Pro Ser Pro Ser Pro Val Ala Ser Gly Arg Leu Val Ala Pro Ala Val
 20 25 30

55

Leu Gly Phe Ala Gly Ala Pro Arg Phe Pro Thr Leu Arg Ala Ala Pro
 35 40 45

60

Arg Arg Leu Thr Ala Arg Ala Val Ala Gly Asp Ala Glu Asp Glu Xaa
 50 55 60

65

Gly Lys Glu Pro Ala Ala Asp Gln Gly Gly Ala Ala Ala Val Ala
 65 70 75 80

Glu Ala Pro Ala Asp Val Pro Val Thr Ser Glu Val Ala Glu Leu Lys
 85 90 95

Ala Lys Leu Lys Glu Ala Leu Tyr Gly Thr Glu Arg Gly Leu Arg Ala
 100 105 110

5 Ser Ser Glu Thr Arg Ala Glu Val Val Glu Leu Ile Thr Gln Leu Glu
 115 120 125
 Ala Arg Asn Pro Thr Pro Ala Pro Thr Glu Ala Leu Thr Leu Leu Asn
 130 135 140
 10 Gly Lys Trp Ile Leu Ala Tyr Thr Ser Phe Ser Gln Leu Phe Pro Leu
 145 150 155 160
 15 Leu Gly Ser Gly Ser Leu Pro Gln Leu Val Lys Val Glu Glu Ile Ser
 165 170 175
 20 Gln Thr Ile Asp Ser Glu Asn Phe Thr Val Gln Asn Cys Ile Lys Phe
 180 185 190
 25 Ser Gly Pro Leu Ala Thr Thr Ser Val Ser Thr Asn Ala Lys Phe Glu
 195 200 205
 Val Arg Ser Pro Lys Arg Val Gln Ile Lys Phe Asp Glu Gly Ile Ile
 210 215 220
 30 Gly Thr Pro Gln Leu Thr Asp Ser Ile Val Leu Pro Glu Lys Phe Glu
 225 230 235 240
 35 Leu Phe Gly Gln Asn Ile Asp Leu Thr Pro Leu Lys Gly Ile Phe Ser
 245 250 255
 40 Ser Ile Glu Asn Ala Ala Ser Ser Val Ala Arg Thr Ile Ser Gly Gln
 260 265 270
 45 Pro Pro Leu Lys Ile Pro Ile Arg Thr Asp Asn Ala Glu Ser Trp Leu
 275 280 285
 Leu Thr Thr Tyr Leu Asp Asp Glu Leu Arg Ile Ser Arg Gly Asp Gly
 290 295 300
 50 Ser Ser Ile Phe Val Leu Phe Lys Glu Gly Ser Thr Leu Leu Tyr
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 65 <400> 45
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 Ala Pro Ser Ser Ser Gly Thr Thr Ser Arg Pro Thr Ala Ser Arg
 1 5 10 15

acc cag caa aca aaa ggg aga tta act gtg acg ata agc tta aaa gct 96
 Thr Gln Gln Thr Lys Gly Arg Leu Thr Val Thr Ile Ser Leu Lys Ala
 20 25 30

5
 tat tcg ccg gga agg aca agg tcg gga tga 126
 Tyr Ser Pro Gly Arg Thr Arg Ser Gly
 35 40

10
 <210> 46
 <211> 41
 <212> PRT
 <213> Oryza sativa

15
 <400> 46

Ala Pro Ser Ser Ser Ser Gly Thr Thr Ser Arg Pro Thr Ala Ser Arg
 1 5 10 15

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 Thr Gln Gln Thr Lys Gly Arg Leu Thr Val Thr Ile Ser Leu Lys Ala
 20 25 30

25
 Tyr Ser Pro Gly Arg Thr Arg Ser Gly
 35 40

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 <210> 47
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 <212> DNA
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 <221> CDS
 <222> (1)..(690)

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 1 5 10 15

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 ccg tcg cgc gtg cag cag ggc gcc gcc gac ttc gag gag acg ctc ttc 96
 Pro Ser Arg Val Gln Gln Gly Ala Ala Asp Phe Glu Glu Thr Leu Phe
 20 25 30

50
 gtg cgc tgc cac ctc tac tgc agc ggc ggc gcc ggc acc ggc aag ccg 144
 Val Arg Cys His Leu Tyr Cys Ser Gly Gly Ala Gly Thr Gly Lys Pro
 35 40 45

55
 ctc agg ttc gag ccc cgg ccg ttc ctc ctg tcg gcg gtg gcc gtg gaa 192
 Leu Arg Phe Glu Pro Arg Pro Phe Leu Leu Ser Ala Val Ala Val Glu
 50 55 60

60
 gcc ccc gag ctc gac ttt ggc cgg agc gcc gtc gac ctg agc ctc ctc 240
 Ala Pro Glu Leu Asp Phe Gly Arg Ser Ala Val Asp Leu Ser Leu Leu
 65 70 75 80

65
 gtg aag gag tcc acg gac aag agc cag caa ggg gag cgt gtc cgg caa 288
 Val Lys Glu Ser Thr Asp Lys Ser Gln Gln Gly Glu Arg Val Arg Gln
 85 90 95

65
 tgg gac atg gcg ttg ccg ctc gcc ggg aag gcg aag ggc ggc gag ctc 336
 Trp Asp Met Ala Leu Pro Leu Ala Gly Lys Ala Lys Gly Gly Glu Leu
 100 105 110

	gtc gtc aaa ctg tcg ttc cag atc atg gac gac ggc ggc gtc ggg ctg Val Val Lys Leu Ser Phe Gln Ile Met Asp Asp Gly Gly Val Gly Leu 115 120 125	384
5	ttc aac cag acc gga gca gca acc aag att aac tcg tcg tcg tcg tct Phe Asn Gln Thr Gly Ala Ala Thr Lys Ile Asn Ser Ser Ser Ser 130 135 140	432
10	tct tcc ttg ttt gca cgg aag cag agc aag cta tcc ttc agc atc acg Ser Ser Leu Phe Ala Arg Lys Gln Ser Lys Leu Ser Phe Ser Ile Thr 145 150 155 160	480
15	agc ccg aag gtg tcg cgg tcg gag ccg aag ctg acg ccg aca aag ggc Ser Pro Lys Val Ser Arg Ser Glu Pro Lys Leu Thr Pro Thr Lys Gly 165 170 175	528
20	tcg ccg tcg ccg gac ttg cga ggc att gac gac ttc aag ctc gac gag Ser Pro Ser Pro Asp Leu Arg Gly Ile Asp Asp Phe Lys Leu Asp Glu 180 185 190	576
25	ccc agt ttg cca tcg ctg gca gag gcc aag caa gag cag aag gag cca Pro Ser Leu Pro Ser Leu Ala Glu Ala Lys Gln Glu Gln Lys Glu Pro 195 200 205	624
30	gag ccg ccg gag ccg gag gag aag gtc gat gac tcg gag ttc ccg gag Glu Pro Pro Glu Pro Glu Glu Lys Val Asp Asp Ser Glu Phe Pro Glu 210 215 220	672
35	ttc gac gta gtg gac aaa gg Phe Asp Val Val Asp Lys 225 230	692
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55	Val Arg Cys His Leu Tyr Cys Ser Gly Gly Ala Gly Thr Gly Lys Pro 35 40 45	
60	Leu Arg Phe Glu Pro Arg Pro Phe Leu Leu Ser Ala Val Ala Val Glu 50 55 60	
65	Ala Pro Glu Leu Asp Phe Gly Arg Ser Ala Val Asp Leu Ser Leu Leu 65 70 75 80	
70	Val Lys Glu Ser Thr Asp Lys Ser Gln Gln Gly Glu Arg Val Arg Gln 85 90 95	
75	Trp Asp Met Ala Leu Pro Leu Ala Gly Lys Ala Lys Gly Gly Glu Leu 100 105 110	

Val Val Lys Leu Ser Phe Gln Ile Met Asp Asp Gly Gly Val Gly Leu
115 120 125

5 Phe Asn Gln Thr Gly Ala Ala Thr Lys Ile Asn Ser Ser Ser Ser
130 135 140

10 Ser Ser Leu Phe Ala Arg Lys Gln Ser Lys Leu Ser Phe Ser Ile Thr
145 150 155 160

15 Ser Pro Lys Val Ser Arg Ser Glu Pro Lys Leu Thr Pro Thr Lys Gly
165 170 175

Ser Pro Ser Pro Asp Leu Arg Gly Ile Asp Asp Phe Lys Leu Asp Glu
180 185 190

20 Pro Ser Leu Pro Ser Leu Ala Glu Ala Lys Gln Glu Gln Lys Glu Pro
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25 Glu Pro Pro Glu Pro Glu Glu Lys Val Asp Asp Ser Glu Phe Pro Glu
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30 Phe Asp Val Val Asp Lys
225 230

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<222> (1)..(1503)

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50 cgg cag ata ttc gac gag gtg tgg cgc aag ttc tcg cgg ctg ggg cag 96
Arg Gln Ile Phe Asp Glu Val Trp Arg Lys Phe Ser Arg Leu Gly Gln
20 25 30

55 atg tcg agc gcg tcg tcg acg gcg ctg gcg gag gag gag cag gcc gtg 144
Met Ser Ser Ala Ser Ser Thr Ala Leu Ala Glu Glu Glu Gln Ala Val
35 40 45

60 ctc atc cgc ggc gga ccc atg tgc gag ttc acc gtc ccc ggc gcg cag 192
Leu Ile Arg Gly Gly Pro Met Cys Glu Phe Thr Val Pro Gly Ala Gln
50 55 60

65 gac acc acc gtc ctc gtc gtc ggc gcc acc agc cgc atc ggc cgc atc 240
Asp Thr Thr Val Leu Val Val Gly Ala Thr Ser Arg Ile Gly Arg Ile
65 70 75 80

65 gtc gtc cgc aag ctc atg ctc cgc ggg tac aat gtc aag gct tta gtt 288
Val Val Arg Lys Leu Met Leu Arg Gly Tyr Asn Val Lys Ala Leu Val
85 90 95

aga agg aat gat gct gaa gtg ata gat atg ctc cca agg tcg gtg gat 336

	Arg	Arg	Asn	Asp	Ala	Glu	Val	Ile	Asp	Met	Leu	Pro	Arg	Ser	Val	Asp	
			100						105					110			
5	att	gtt	gtc	ggt	gat	gtt	ggt	gat	cct	tca	act	gtc	aaa	tcg	gct	gta	384
	Ile	Val	Val	Gly	Asp	Val	Gly	Asp	Pro	Ser	Thr	Val	Lys	Ser	Ala	Val	
			115					120					125				
10	tca	ggt	tgc	agc	aag	ata	atc	tat	tgc	gca	act	gca	cgc	tca	act	att	432
	Ser	Gly	Cys	Ser	Lys	Ile	Ile	Tyr	Cys	Ala	Thr	Ala	Arg	Ser	Thr	Ile	
			130				135					140					
15	act	gga	gac	cta	aat	agg	gtt	gat	aat	caa	gga	gta	agg	aat	gtt	agt	480
	Thr	Gly	Asp	Leu	Asn	Arg	Val	Asp	Asn	Gln	Gly	Val	Arg	Asn	Val	Ser	
			145			150					155				160		
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	Lys	Ser	Ser	Lys	Ser	Lys	Leu	Leu	Ile	Ala	Lys	Phe	Lys	Ser	Pro	Lys	
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	Ser	Leu	Asn	Gly	Trp	Glu	Val	Asp	Gln	Gly	Ser	Tyr	Phe	Pro	Asn	Thr	
			195					200					205				
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	Phe	Ala	Ser	Arg	Phe	Asp	Glu	Gly	Ile	Asp	Ala	Ser	Phe	Asp	Phe	Ser	
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	Glu	Ala	Gly	Gln	Ala	Val	Phe	Ser	Gly	Phe	Val	Phe	Thr	Arg	Gly	Gly	
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	Tyr	Val	Glu	Ile	Ser	Lys	Arg	Leu	Ser	Leu	Pro	Leu	Gly	Ser	Thr	Leu	
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	Phe	Glu	Leu	Ile	Leu	Glu	Tyr	Ile	Lys	Ala	Leu	Pro	Thr	Gly	Gln	Glu	
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	Arg	Arg	Ser	Gly	Leu	Gly	Tyr	Thr	Ile	Val	Arg	Pro	Gly	Pro	Leu	Gln	415
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25	Lys Ser Ser Lys Ser Lys Leu Leu Ile Ala Lys Phe Lys Ser Pro Lys 180 185 190		
30	Ser Leu Asn Gly Trp Glu Val Asp Gln Gly Ser Tyr Phe Pro Asn Thr 195 200 205		
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30	gat gag aat aca gct tac ccg cca atc aca gct ttc cag agt gca gct Asp Glu Asn Thr Ala Tyr Pro Pro Ile Thr Ala Phe Gln Ser Ala Ala	725	730	735	2208
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45	gat ttc atc ttt cag gca gct gta cca aag ttt atc cag ttg cgt ttg Asp Phe Ile Phe Gln Ala Ala Val Pro Lys Phe Ile Gln Leu Arg Leu	770	775	780	2352
50	gac ccc gct agc agc aac acg ctt cct gcc agt gga aat gat tct gtt Asp Pro Ala Ser Ser Asn Thr Leu Pro Ala Ser Gly Asn Asp Ser Val	785	790	795	2400
55	aca caa agc ctc agt gtc aca aat aac caa cat gga cag aaa ccc ctt Thr Gln Ser Leu Ser Val Thr Asn Asn Gln His Gly Gln Lys Pro Leu	805	810	815	2448
60	gcg atg cgt atc cgg ata act tac aaa gtg aac gac aaa ctc atc atg Ala Met Arg Ile Arg Ile Thr Tyr Lys Val Asn Asp Lys Leu Ile Met	820	825	830	2496
65	aat cgg agg aga tgc tcg aca aaa tat gac ctg gta aag cac tcg agt Asn Arg Arg Arg Cys Ser Thr Lys Tyr Asp Leu Val Lys His Ser Ser	835	840	845	2544
70	ctc ctg gcc atc gag gcg ata aac cct ccc ttg tac cga agt gaa cga Leu Leu Ala Ile Glu Ala Ile Asn Pro Pro Leu Tyr Arg Ser Glu Arg	850	855	860	2592
75	gca cta gtg cac gag tac tta gcc tgt gtc tat cgc ttt cgg ccg ttt Ala Leu Val His Glu Tyr Leu Ala Cys Val Tyr Arg Phe Arg Pro Phe	865	870	875	2640
80	cga aac gct ccc gtc caa gca ata aga cga gac gtg gct gag ata taa Arg Asn Ala Pro Val Gln Ala Ile Arg Arg Asp Val Ala Glu Ile	885	890	895	2688

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Phe Leu His Ile Arg Val Leu Lys Leu Met Arg Ile Leu Gly Gln Gly
 245 250 255

Asp Ala Asp Cys Ser Glu Phe Val Asn Asp Ile Leu Ala Gln Leu Cys
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 Lys Thr Glu Ser Asn Lys Asn Ala Gly Asn Ala Ile Leu Tyr Glu Cys
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 Val Glu Thr Ile Met Gly Ile Glu Ala Thr Ser Gly Leu Arg Val Leu
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 Ala Ile Asn Ile Leu Gly Arg Phe Leu Ser Asn Arg Asp Asn Asn Ile
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 Arg Tyr Val Ala Leu Asn Met Leu Met Lys Ala Met Glu Val Asp Thr
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 Gln Ala Val Gln Arg His Arg Ala Thr Ile Leu Glu Cys Val Lys Asp
 355 360 365
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 Val Asn Asp Ala Asn Ala Lys Ser Leu Thr Lys Glu Leu Val Asp Tyr
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 Leu Glu Val Ser Asp Gln Asp Phe Lys Asp Asp Leu Thr Ala Lys Ile
 405 410 415
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 Cys Ser Ile Val Glu Lys Phe Ser Gln Asp Lys Leu Trp Tyr Leu Asp
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 Gln Met Phe Lys Val Leu Ser Leu Ala Gly Asn Tyr Val Lys Asp Asp
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 Val Trp His Ala Leu Ile Val Leu Ile Ser Asn Ala Ser Glu Leu Gln
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 Gly Tyr Ser Val Arg Ser Leu Tyr Lys Ala Leu Leu Ala Cys Gly Glu
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 Thr Val Thr Glu Ser Asp Ala Val Asp Ala Val Glu Val Ser Leu Lys
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5 Arg Tyr Ser Ala Asp Val Thr Thr Arg Ala Met Cys Leu Val Ser Leu
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 20 Thr Pro Gly Ser Ser Leu Lys Leu Pro Asn Gly Val Ala Lys Pro Pro
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 675 680 685
 45 Ala Ser Thr Asp Ile Leu Met Asp Leu Leu Ser Ile Gly Ser Ser Pro
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 Asp Pro Ala Ser Ser Asn Thr Leu Pro Ala Ser Gly Asn Asp Ser Val
 785 790 795 800

Thr Gln Ser Leu Ser Val Thr Asn Asn Gln His Gly Gln Lys Pro Leu
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 Ala Met Arg Ile Arg Ile Thr Tyr Lys Val Asn Asp Lys Leu Ile Met
 820 825 830
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 Asn Arg Arg Arg Cys Ser Thr Lys Tyr Asp Leu Val Lys His Ser Ser
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 Leu Leu Ala Ile Glu Ala Ile Asn Pro Pro Leu Tyr Arg Ser Glu Arg
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 acc ggc gcg gcg gac gcg gcg gag ctg aag gag cgc atc gag gcg cgg 96
 Thr Gly Ala Ala Asp Ala Ala Glu Leu Lys Glu Arg Ile Glu Ala Arg
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 acc aag aag gcc gtg cag atc gtc tcc gcc ggc gcc ggc ccg ccg ccc 144
 Thr Lys Lys Ala Val Gln Ile Val Ser Ala Gly Ala Gly Pro Pro Pro
 35 40 45
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 aag aag gat aag gag gag aag aag gac aag gac aag aag ggc ggc ggc 192
 Lys Lys Asp Lys Glu Glu Lys Lys Asp Lys Asp Lys Lys Gly Gly Gly
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 gac gac aag aag gcc gag aag gag aag ggc ggc ggc ggc ggc gat aag 240
 Asp Asp Lys Lys Ala Glu Lys Glu Lys Gly Gly Gly Gly Gly Asp Lys
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 aag gcg gag aag gag aag ggc ggc ggc gac aag ccc aag gag gag aag 288
 Lys Ala Glu Lys Glu Lys Gly Gly Gly Asp Lys Pro Lys Glu Glu Lys
 85 90 95
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 Lys Ala Lys Glu Pro Lys Glu Glu Thr Val Thr Leu Lys Ile Arg Leu
 100 105 110
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 cac tgc gag gga tgc atc gac cgc atc aag cgc cgc atc tgc aag atc 384
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 Lys Gly Gly
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 25 35 40 45
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 Lys Ala Glu Lys Glu Lys Gly Gly Gly Asp Lys Pro Lys Glu Glu Lys
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 Lys Ala Lys Glu Pro Lys Glu Glu Thr Val Thr Leu Lys Ile Arg Leu
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 Lys Thr Ser Val Asn Val Arg Ile Gln Gly His Ser Leu Arg Leu Val
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	Glu Val Glu Gly Thr His Pro Val Gln Asn Val Tyr Asp Ser Leu Asp	
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	Glu Val Glu Gly Thr His Pro Val Gln Asn Val Tyr Asp Ser Leu Asp	
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	1 5 10 15	
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	Ile Asn Pro Gly Asp Leu Ser Val Leu His Asp Leu Arg Arg Ser Leu	
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55	acc aam gcc gaa gcc gtc ctc ggc tgg ggc gac ccc aac gcc gcc gac	144
	Thr Xaa Ala Glu Ala Val Leu Gly Trp Gly Asp Pro Asn Ala Ala Asp	
	35 40 45	
60	ccg tgc gcc gca tgg ccg cac atc tcc tgc gac cgc gcc ggc cgc gtc	192
	Pro Cys Ala Ala Trp Pro His Ile Ser Cys Asp Arg Ala Gly Arg Val	
	50 55 60	
	aac aac atc gac ctc aag aac gcc ggc ctc gcc ggg acg ctc ccc ttc	240
	Asn Asn Ile Asp Leu Lys Asn Ala Gly Leu Ala Gly Thr Leu Pro Phe	
	65 70 75 80	
65	acc ttt gcc gcg ctc gac gcg ctc cag gac ctc agc ctc cag aac cac	288
	Thr Phe Ala Ala Leu Asp Ala Leu Gln Asp Leu Ser Leu Gln Asn His	
	85 90 95	

	aac ctc tcc ggc gac ctc ccg tcc ttc cgc ggc atg gcc tcc ctc cgc	336
	Asn Leu Ser Gly Asp Leu Pro Ser Phe Arg Gly Met Ala Ser Leu Arg	
	100 105 110	
5	cac gcc ttc ctc aac aac aac tcc ttc cgc tcc atc ccc gcc gac ttc	384
	His Ala Phe Leu Asn Asn Asn Ser Phe Arg Ser Ile Pro Ala Asp Phe	
	115 120 125	
10	ttc agc ggc ctc acc tcc ctc ctc gtc atc tcc ctc gac cag aac ccg	432
	Phe Ser Gly Leu Thr Ser Leu Val Ile Ser Leu Asp Gln Asn Pro	
	130 135 140	
15	ctc aac gtc tcc tcc ggg ggg tgg acg atc ccc gcc gac gtc gcc gcc	480
	Leu Asn Val Ser Ser Gly Gly Trp Thr Ile Pro Ala Asp Val Ala Ala	
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20	gcg cag cag ctg cag agc ctc agc ctc aac gga tgc aac ctc acc ggc	528
	Ala Gln Gln Leu Gln Ser Leu Ser Leu Asn Gly Cys Asn Leu Thr Gly	
	165 170 175	
	gcc atc ccg gac ttc ctc ggc gcc atg aac agc ctc cag gag ctc aag	576
	Ala Ile Pro Asp Phe Leu Gly Ala Met Asn Ser Leu Gln Glu Leu Lys	
	180 185 190	
25	ctc gcc tac aac gcc ctc tcc gga ccc atc ccc tcc acc ttc aac gcc	624
	Leu Ala Tyr Asn Ala Leu Ser Gly Pro Ile Pro Ser Thr Phe Asn Ala	
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	Ser Gly Leu Gln Thr Leu Trp Leu Asn Asn Gln His Gly Val Pro Lys	
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35	ctc tcc ggc acg ctc gac ctc atc gcc acc atg ccc aac ctc gaa cag	720
	Leu Ser Gly Thr Leu Asp Leu Ile Ala Thr Met Pro Asn Leu Glu Gln	
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40	gca tgg ctc cac ggc aac gac ttc tcc ggc ccc atc ccg gac tcc atc	768
	Ala Trp Leu His Gly Asn Asp Phe Ser Gly Pro Ile Pro Asp Ser Ile	
	245 250 255	
	gcc gac tgc aag cgc ctc tcc gac ctc tgc ctc aac agc aac cag ctc	816
	Ala Asp Cys Lys Arg Leu Ser Asp Leu Cys Leu Asn Ser Asn Gln Leu	
	260 265 270	
45	gtc ggc ctc gtc cca ccg gcg ctc gag tcc atg gcc ggc ctc aag tcc	864
	Val Gly Leu Val Pro Pro Ala Leu Glu Ser Met Ala Gly Leu Lys Ser	
	275 280 285	
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	Val Gln Leu Asp Asn Asn Asn Leu Leu Gly Pro Val Pro Ala Ile Lys	
	290 295 300	
55	gcg ccc aag tac acc tac tca cag aac ggg ttc tgc gcc gac aag ccg	960
	Ala Pro Lys Tyr Thr Tyr Ser Gln Asn Gly Phe Cys Ala Asp Lys Pro	
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60	ggg gtc gcc tgc tgc cct cag gtg atg gca ttg ctt cac ttc ctc gcc	1008
	Gly Val Ala Cys Ser Pro Gln Val Met Ala Leu Leu His Phe Leu Ala	
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	gag gtc gat tac ccc aag agg ctg gta gct agt tgg tcc ggg aac aat	1056
	Glu Val Asp Tyr Pro Lys Arg Leu Val Ala Ser Trp Ser Gly Asn Asn	
	340 345 350	
65	tcc tgc gtg gat tgg ctg gga att agc tgc gtt gca ggg aat gtg acg	1104
	Ser Cys Val Asp Trp Leu Gly Ile Ser Cys Val Ala Gly Asn Val Thr	
	355 360 365	

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	Leu Gly Asn Leu Ser Glu Leu Ser Asp Ile Asn Leu Ile Gly Asn Asn 385 390 395 400	
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	Leu Thr Gly His Val Pro Asp Ser Leu Thr Ser Leu Arg Leu Leu Gln 405 410 415	
20	aag ctg gac ctg tcc ggg aac gac ctg acc ggc ccg ctg ccc acc ttc	1296
	Lys Leu Asp Leu Ser Gly Asn Asp Leu Thr Gly Pro Leu Pro Thr Phe 420 425 430	
25	agc ccg agt gtg aag gtg aat gtg acc ggc aat ctc aac ttc aat ggg	1344
	Ser Pro Ser Val Lys Val Asn Val Thr Gly Asn Leu Asn Phe Asn Gly 435 440 445	
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	Thr Ala Pro Gly Ser Ala Pro Ser Lys Asp Thr Pro Gly Ser Ser Ser 450 455 460	
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	Ser Arg Ala Pro Thr Leu Pro Gly Gln Gly Val Leu Pro Glu Asn Lys 465 470 475 480	
40	aag aaa aga tca gct gtt gtg ttg gcc acc acc atc ccg gtt gca gtc	1488
	Lys Lys Arg Ser Ala Val Val Leu Ala Thr Thr Ile Pro Val Ala Val 485 490 495	
45	agt gtg gtg gct ctg gct tca gtg tgt gcc gtg ctc atc ttc cgt aag	1536
	Ser Val Val Ala Leu Ala Ser Val Cys Ala Val Leu Ile Phe Arg Lys 500 505 510	
50	aaa agg gga tca gtt cca cca aat gca gct tcc gtc gtc gtc cac ccc	1584
	Lys Arg Gly Ser Val Pro Pro Asn Ala Ala Ser Val Val Val His Pro 515 520 525	
55	cgc gag aat tct gac cca gac aac ttg gtc aag att gtc atg gtg aac	1632
	Arg Glu Asn Ser Asp Pro Asp Asn Leu Val Lys Ile Val Met Val Asn 530 535 540	
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	Ser Ser Arg Ala Ser Asp Val His Met Ile Asp Thr Gly Asn Phe Val 565 570 575	
70	att gct gtg cag gtc ctc cgt ggc gca acc aag aac ttt acc cag gac	1776
	Ile Ala Val Gln Val Leu Arg Gly Ala Thr Lys Asn Phe Thr Gln Asp 580 585 590	
75	aat gtg ctt ggc cgt ggg ggc ttt ggt gtc gtc tac aag ggt gag ctg	1824
	Asn Val Leu Gly Arg Gly Gly Phe Gly Val Val Tyr Lys Gly Glu Leu 595 600 605	
80	cat gac ggc acg atg att gct gtg aag agg atg gag gct gca gtg atc	1872
	His Asp Gly Thr Met Ile Ala Val Lys Arg Met Glu Ala Ala Val Ile 610 615 620	
85	agc aac aag gcc ttg gat gag ttc caa gcc gag att acc att cta acc	1920
	Ser Asn Lys Ala Leu Asp Glu Phe Gln Ala Glu Ile Thr Ile Leu Thr 625 630 635 640	

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5	ggg aat gag agg ctg ctg gtc tat gag tac atg tcc aac ggg gct ttg	2016
	Gly Asn Glu Arg Leu Leu Val Tyr Glu Tyr Met Ser Asn Gly Ala Leu	
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	Ser Lys His Leu Phe Gln Trp Lys Gln Phe Glu Leu Glu Pro Leu Ser	
	675 680 685	
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	Trp Lys Lys Arg Leu Asn Ile Ala Leu Asp Val Ala Arg Gly Met Glu	
	690 695 700	
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	Tyr Leu His Asn Leu Ala His Gln Cys Tyr Ile His Arg Asp Leu Lys	
	705 710 715 720	
25	tca gca aac att ctc ctc ggc gac gat ttc cga gca aag gta tca gac	2208
	Ser Ala Asn Ile Leu Leu Gly Asp Asp Phe Arg Ala Lys Val Ser Asp	
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	Phe Gly Leu Val Lys His Ala Pro Asp Gly Asn Phe Ser Val Ala Thr	
	740 745 750	
35	aga ctc gct gga act ttt ggg tac ttg gct cct gaa tat gct gtg act	2304
	Arg Leu Ala Gly Thr Phe Gly Tyr Leu Ala Pro Glu Tyr Ala Val Thr	
	755 760 765	
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	Gly Lys Ile Thr Thr Lys Ala Asp Val Phe Ser Phe Gly Val Val Leu	
	770 775 780	
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	785 790 795 800	
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	Glu Glu Thr Arg Tyr Leu Ala Ser Trp Phe Cys Gln Ile Arg Lys Asp	
	805 810 815	
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	Glu Asp Arg Leu Arg Ala Ala Ile Asp Pro Thr Leu Asp Gln Ser Asp	
	820 825 830	
60	gag act ttt gag agc atc tcc gtg atc gca gag ctt gct ggc cac tgc	2544
	Glu Thr Phe Glu Ser Ile Ser Val Ile Ala Glu Leu Ala Gly His Cys	
	835 840 845	
65	aca tcc cgg gaa ccc acc cag cga ccg gac atg ggc cac gcc gtg aac	2592
	Thr Ser Arg Glu Pro Thr Gln Arg Pro Asp Met Gly His Ala Val Asn	
	850 855 860	
70	gtg ctc gtc ccg atg gta gag aaa tgg aag cct gtg aac gac gag acc	2640
	Val Leu Val Pro Met Val Glu Lys Trp Lys Pro Val Asn Asp Glu Thr	
	865 870 875 880	
75	gag gac tac atg ggc att gat ctg cac cag ccg ttg ctc cag atg gtg	2688
	Glu Asp Tyr Met Gly Ile Asp Leu His Gln Pro Leu Leu Gln Met Val	
	885 890 895	
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	Lys Gly Trp Gln Asp Ala Glu Ala Ser Met Thr Asp Gly Ser Ile Leu	
	900 905 910	

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 Ser Leu Glu Asp Ser Lys Gly Ser Ile Pro Ala Arg Pro Ala Gly Phe
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 Pro Cys Ala Ala Trp Pro His Ile Ser Cys Asp Arg Ala Gly Arg Val
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 Asn Asn Ile Asp Leu Lys Asn Ala Gly Leu Ala Gly Thr Leu Pro Phe
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 100 105 110
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 His Ala Phe Leu Asn Asn Asn Ser Phe Arg Ser Ile Pro Ala Asp Phe
 115 120 125
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 Phe Ser Gly Leu Thr Ser Leu Leu Val Ile Ser Leu Asp Gln Asn Pro
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 Ala Gln Gln Leu Gln Ser Leu Ser Leu Asn Gly Cys Asn Leu Thr Gly
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 Ala Ile Pro Asp Phe Leu Gly Ala Met Asn Ser Leu Gln Glu Leu Lys
 180 185 190

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 Ser Gly Leu Gln Thr Leu Trp Leu Asn Asn Gln His Gly Val Pro Lys
 210 215 220
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 225 230 235 240
 15 Ala Trp Leu His Gly Asn Asp Phe Ser Gly Pro Ile Pro Asp Ser Ile
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 25 Val Gly Leu Val Pro Pro Ala Leu Glu Ser Met Ala Gly Leu Lys Ser
 275 280 285
 Val Gln Leu Asp Asn Asn Asn Leu Leu Gly Pro Val Pro Ala Ile Lys
 290 295 300
 30 Ala Pro Lys Tyr Thr Tyr Ser Gln Asn Gly Phe Cys Ala Asp Lys Pro
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 40 Glu Val Asp Tyr Pro Lys Arg Leu Val Ala Ser Trp Ser Gly Asn Asn
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 355 360 365
 Met Leu Asn Leu Pro Glu Tyr Gly Leu Asn Gly Thr Ile Ser Asp Ser
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 65 Ser Pro Ser Val Lys Val Asn Val Thr Gly Asn Leu Asn Phe Asn Gly
 435 440 445
 Thr Ala Pro Gly Ser Ala Pro Ser Lys Asp Thr Pro Gly Ser Ser Ser
 450 455 460

5 Ser Arg Ala Pro Thr Leu Pro Gly Gln Gly Val Leu Pro Glu Asn Lys
 465 470 475 480
 Lys Lys Arg Ser Ala Val Val Leu Ala Thr Thr Ile Pro Val Ala Val
 485 490 495
 10 Ser Val Val Ala Leu Ala Ser Val Cys Ala Val Leu Ile Phe Arg Lys
 500 505 510
 15 Lys Arg Gly Ser Val Pro Pro Asn Ala Ala Ser Val Val Val His Pro
 515 520 525
 20 Arg Glu Asn Ser Asp Pro Asp Asn Leu Val Lys Ile Val Met Val Asn
 530 535 540
 25 Asn Asp Gly Asn Ser Ser Ser Thr Gln Gly Asn Thr Leu Ser Gly Ser
 545 550 555 560
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 565 570 575
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 40 His Asp Gly Thr Met Ile Ala Val Lys Arg Met Glu Ala Ala Val Ile
 610 615 620
 45 Ser Asn Lys Ala Leu Asp Glu Phe Gln Ala Glu Ile Thr Ile Leu Thr
 625 630 635 640
 Lys Val Arg His Arg Asn Leu Val Ser Ile Leu Gly Tyr Ser Ile Glu
 645 650 655
 50 Gly Asn Glu Arg Leu Leu Val Tyr Glu Tyr Met Ser Asn Gly Ala Leu
 660 665 670
 55 Ser Lys His Leu Phe Gln Trp Lys Gln Phe Glu Leu Glu Pro Leu Ser
 675 680 685
 60 Trp Lys Lys Arg Leu Asn Ile Ala Leu Asp Val Ala Arg Gly Met Glu
 690 695 700
 65 Tyr Leu His Asn Leu Ala His Gln Cys Tyr Ile His Arg Asp Leu Lys
 705 710 715 720
 Ser Ala Asn Ile Leu Leu Gly Asp Asp Phe Arg Ala Lys Val Ser Asp
 725 730 735

5 Phe Gly Leu Val Lys His Ala Pro Asp Gly Asn Phe Ser Val Ala Thr
 740 745 750
 Arg Leu Ala Gly Thr Phe Gly Tyr Leu Ala Pro Glu Tyr Ala Val Thr
 755 760 765
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Gln Leu His Leu Leu Pro Val His Glu Arg His Asp Gln Arg His Gly
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5 Asp Ala Ala Asp Glu Gln His Glu Glu Pro Pro Leu Arg His Leu Leu
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10 Val Pro Pro His Gln Leu Arg Val His Val His Leu Arg Arg Arg Gly
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15 Ala His Arg Arg Pro Ala Leu Pro Pro Asp Val Pro Ala Val Glu Gln
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Arg His Val His Asp Arg Arg Arg Glu Pro Gln Glu Pro Gly Pro Asp
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20 Gly Asp Gly Glu Gln Arg Ala Gln Val Gln Leu Pro Val Ala Leu Val
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25 Arg Arg His Val Glu Val Glu Leu Pro Arg Glu His Leu Gly Gly Val
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30 Val Leu Leu Pro Gly Arg Arg Glu Gln Leu Val Gly Glu Asp Trp Glu
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45	tgg gcg Trp Ala 1250	gcc ctg gaa gaa Ala Leu Glu Glu 1255	cta aaa tgg ggg gat Leu Lys Trp Gly Asp 1260	gat aac cac aag Asp Asn His Lys	3789
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65	gct gta Ala Val 1310	gga gag cca ccg Gly Glu Pro Pro 1315	ttt ttc ctc ggt tca Phe Phe Leu Gly Ser 1320	gcc gtc ttg ttt Ala Val Leu Phe	3969
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Thr Pro Thr Lys Ser Tyr Ser Pro Cys Ser Tyr Asn Glu Ile Asp Gly

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10	Arg	Lys	Val	Thr	Ser	Leu	Lys	Leu	Asn	Gly	Phe	Asn	Gly	Ile	Arg	Trp
				260					265					270		
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			275					280					285			
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		290					295					300				
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				340					345					350		
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			355					360					365			
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			435					440					445			
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	785	790	795 800
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		835 840	845
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70	Gly Gln Leu Leu Gln Asn Cys Thr Ile His Ser Val Trp Asp Glu Leu		
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80	Phe Asn Asn Asn Asn Arg Trp Arg Lys Arg Gly Ile Ala Met Val		
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112

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	Ala Leu Gln Asn His Val Lys Thr Ala Leu Gln Ser Thr Gly Lys Ile					
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	85 90 95					
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	Leu Glu Ser Met His Lys Cys Cys Leu Pro Ser Gly Val Pro Ser Glu					
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 Asn Met Pro Ala Arg Arg Thr Ile Pro Glu Lys Ile Ser Gly Leu Ser
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 Glu His Pro Gln His Gln Gly Gly Ala Ala Gly Ala Val Gly Gly Gly
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 25 cga gaa ggc gga gga cgt gct cat cta ctc cga ccg cgt cgc cat cga 288
 Arg Glu Gly Gly Gly Arg Ala His Leu Leu Arg Pro Arg Arg His Arg
 85 90 95
 gac atc ggt gac cgc gta ggc cac acc tac tgt ctc tcc cga ctc cgg 336
 Asp Ile Gly Asp Arg Val Gly His Thr Tyr Cys Leu Ser Arg Leu Arg
 100 105 110
 30 cga atc gct cag aac gag caa cca tcc atc cat cca tgt cca tcc ctg 384
 Arg Ile Ala Gln Asn Glu Gln Pro Ser Ile His Pro Cys Pro Ser Leu
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 Ala Gly Gln Val Ile Ile Arg Trp Glu Phe Arg Ile Gly Arg Asp Asn
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 35 40 45
 65 Ala Gly Gly His Ala Ala Ala Gly Glu Gly Arg Gly Pro Arg Ala Gly
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Glu His Pro Gln His Gln Gly Gly Ala Ala Gly Ala Val Gly Gly Gly
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Arg Glu Gly Gly Gly Arg Ala His Leu Leu Arg Pro Arg Arg His Arg
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Asp Ile Gly Asp Arg Val Gly His Thr Tyr Cys Leu Ser Arg Leu Arg
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Ala Gly Gln Val Ile Ile Arg Trp Glu Phe Arg Ile Gly Arg Asp Asn
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 Arg Ala Pro Ala Ser Ala Asp Glu Thr Arg Gly Ser Asp Gly Ser Ser
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tca tct agc gat gat gat gtc acg gag gac gat cgc cgt ggt agc tgc 144
 Ser Ser Ser Asp Asp Asp Val Thr Glu Asp Asp Arg Arg Gly Ser Cys
 35 40 45

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acc gat tgc gtc agt att gca aag cac ctg gag tca gct aat aca atg 192
 Thr Asp Cys Val Ser Ile Ala Lys His Leu Glu Ser Ala Asn Thr Met
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 Phe Ser Phe Ile Trp Trp Ile Ile Gly Phe Tyr Trp Ile Ser Ala Gly
 65 70 75 80

ggt gag gat gtt atc cgt gat gca cct cag ctt tac tgg ctt tgc ata 288
 Gly Glu Asp Val Ile Arg Asp Ala Pro Gln Leu Tyr Trp Leu Cys Ile
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gtc ttt ctg gca ttt gac gtg ttc ttt gtt gta ttc tgt gtt gct ctg 336
 Val Phe Leu Ala Phe Asp Val Phe Phe Val Val Phe Cys Val Ala Leu
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gct tgc atc att ggt att gct gta tgt tgc tgc cta cct tgc att ata 384
 Ala Cys Ile Ile Gly Ile Ala Val Cys Cys Cys Leu Pro Cys Ile Ile
 115 120 125

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 Ala Ile Leu Tyr Ala Val Ser Asp Gln Glu Gly Ala Ser Glu Asp Asp
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 Ile Arg Gln Ile Pro Arg Tyr Lys Phe Arg Arg Thr Asp Glu Pro Glu
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 Lys Gln Thr Ala Asp Glu Thr Gly Pro Phe Gly Gly Ile Met Thr Glu
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 Cys Gly Thr Asn Gln Pro Ile Glu Lys Val Leu Ala Pro Glu Asp Ala
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gag tgt tgc att tgc ctt tcg gca tat gat gat ggt gca gag ctg cgt 624
 Glu Cys Cys Ile Cys Leu Ser Ala Tyr Asp Asp Gly Ala Glu Leu Arg
 195 200 205

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 Glu Leu Pro Cys Gly His His Phe His Cys Ala Cys Ile Asp Lys Trp
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 Leu His Ile Asn Ala Thr Cys Pro Leu Cys Lys Phe Asn Ile Arg Lys
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Thr Asp Cys Val Ser Ile Ala Lys His Leu Glu Ser Ala Asn Thr Met
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Val Phe Leu Ala Phe Asp Val Phe Phe Val Val Phe Cys Val Ala Leu
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10 Ala Ile Leu Tyr Ala Val Ser Asp Gln Glu Gly Ala Ser Glu Asp Asp
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Lys Gln Thr Ala Asp Glu Thr Gly Pro Phe Gly Gly Ile Met Thr Glu
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20 Cys Gly Thr Asn Gln Pro Ile Glu Lys Val Leu Ala Pro Glu Asp Ala
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30 Glu Leu Pro Cys Gly His His Phe His Cys Ala Cys Ile Asp Lys Trp
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Lys Asp Ala Ala Ala Ala Ala Ser Ser Ser Ser Gly Lys Lys Val Pro
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ctg ttc agc ttg ttc cgg tac gcc gac cgc ctc gac gtg ctg ctg atg 144
Leu Phe Ser Leu Phe Arg Tyr Ala Asp Arg Leu Asp Val Leu Leu Met
35 40 45

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Val Val Gly Thr Val Gly Ala Leu Gly Asn Gly Ile Ser Gln Pro Leu
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	85 90 95	
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	100 105 110	
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	130 135 140	
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	145 150 155 160	
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	165 170 175	
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	180 185 190	
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	195 200 205	
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	210 215 220	
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	225 230 235 240	
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	245 250 255	
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	260 265 270	
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	275 280 285	
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	290 295 300	
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	305 310 315 320	
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	325 330 335	
	aat ggc atg gtt tta gaa gat atg aat ggc gat att gag cta aag gat	1056

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	Ser	Gly	Ser	Gly	Lys	Ser	Thr	Val	Ile	Ser	Leu	Val	Glu	Arg	Phe	Tyr	
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	Asp	Pro	Gln	Ser	Gly	Glu	Val	Leu	Ile	Asp	Gly	Ile	Ser	Ile	Lys	Lys	
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	Pro	Leu	Leu	Phe	Met	Ala	Ser	Ile	Lys	Asp	Asn	Ile	Ile	Tyr	Gly	Lys	
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	Ala	Ala	Asn	Phe	Ile	Asp	Lys	Leu	Pro	Asn	Gly	Tyr	Asp	Thr	Leu	Val	
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	Gly	Gln	Arg	Gly	Thr	Gln	Leu	Ser	Gly	Gly	Gln	Lys	Gln	Arg	Ile	Ala	
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	Ile	Ala	Arg	Ala	Ile	Leu	Lys	Asp	Pro	Lys	Ile	Leu	Leu	Leu	Asp	Glu	
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	Leu	Asn	Arg	Met	Met	Val	Glu	Arg	Thr	Thr	Leu	Val	Val	Ala	His	Arg	
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	Gly	Ala	Tyr	Ser	Gln	Leu	Ile	Arg	Leu	Gln	Glu	Thr	His	Arg	Asp	Glu	
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15	aaa	aca	cca	ttt	gga	cgg	ctt	ttt	aat	ctt	aat	aag	cca	gaa	gtg	cca	2016
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	Pro	Leu	Tyr	Gly	Ile	Ile	Met	Pro	Gly	Val	Leu	Lys	Ser	Phe	Tyr	Glu	
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	Val	Val	Leu	Gly	Val	Ala	Cys	Leu	Ile	Ser	Ile	Pro	Ala	Glu	Tyr	Phe	
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	Ser	Phe	Gln	Arg	Ile	Met	His	Gln	Glu	Val	Ala	Trp	Phe	Asp	Lys	Pro	
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	Arg	Leu	Ala	Leu	Ile	Ile	Thr	Cys	Val	Ile	Pro	Leu	Val	Gly	Ala	Gln	
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	Ile	Arg	Thr	Val	Ala	Ser	Phe	Cys	Ser	Glu	Lys	Arg	Val	Val	Ala	Ile	
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15	aaa act act ttt tca gat gtt ttc aaa gtt ttc ttt gct tta gtt ttg Lys Thr Thr Phe Ser Asp Val Phe Lys Val Phe Phe Ala Leu Val Leu	930	935	940	2832	
20	gca gcc gtt ggt gtt tgc cag tca agt gca ttg tcw act aat gca aca Ala Ala Val Gly Val Ser Gln Ser Ser Ala Leu Xaa Thr Asn Ala Thr	945	950	955	960	2880
25	arg gca agg gat tct gcc att tcc att ttt agt att atc gat cgg aag Xaa Ala Arg Asp Ser Ala Ile Ser Ile Phe Ser Ile Ile Asp Arg Lys	965	970	975	2928	
30	tct agg att gat tca agt agc gac gag gga gcg ata atg gaa aac gtc Ser Arg Ile Asp Ser Ser Ser Asp Glu Gly Ala Ile Met Glu Asn Val	980	985	990	2976	
35	act ggc agc att gat ttc aat aat gtc agt ttc aag tac cca tca cgc Thr Gly Ser Ile Asp Phe Asn Asn Val Ser Phe Lys Tyr Pro Ser Arg	995	1000	1005	3024	
40	cct gat gtt caa ata ttc agt gac ttt acc ttg cac att cct tcc Pro Asp Val Gln Ile Phe Ser Asp Phe Thr Leu His Ile Pro Ser	1010	1015	1020	3069	
45	caa aag acc ata gca ctt gtt gga gaa agc ggt agt ggg aag tcc Gln Lys Thr Ile Ala Leu Val Gly Glu Ser Gly Ser Gly Lys Ser	1025	1030	1035	3114	
50	acg ata att gct tta tta gag cgt ttc tat gat cct gat tct ggt Thr Ile Ile Ala Leu Leu Glu Arg Phe Tyr Asp Pro Asp Ser Gly	1040	1045	1050	3159	
55	aat atc tca cta gat gga gtt gaa att aga agc tta aaa gtc agc Asn Ile Ser Leu Asp Gly Val Glu Ile Arg Ser Leu Lys Val Ser	1055	1060	1065	3204	
60	tgg ttg agg gat cag atg ggg ctt gta ggc cag gag cca gtg ctt Trp Leu Arg Asp Gln Met Gly Leu Val Gly Gln Glu Pro Val Leu	1070	1075	1080	3249	
65	ttc aac gam aca atc cgt gcc aac ata aca tac ggg aaa cac agt Phe Asn Xaa Thr Ile Arg Ala Asn Ile Thr Tyr Gly Lys His Ser	1085	1090	1095	3294	
70	gag gta aca gag gaa gag atc act gct gtg gcc aag gca gca aac Glu Val Thr Glu Glu Glu Ile Thr Ala Val Ala Lys Ala Ala Asn	1100	1105	1110	3339	
75	gcc cat gag ttc gta tca agc ctg cca caa gga tac gac aca gtg Ala His Glu Phe Val Ser Ser Leu Pro Gln Gly Tyr Asp Thr Val	1115	1120	1125	3384	
80	gta ggt gag aaa ggg gtg caa cta tct ggt ggg caa aaa cag agg Val Gly Glu Lys Gly Val Gln Leu Ser Gly Gly Gln Lys Gln Arg	1130	1135	1140	3429	
85	gta gca att gca agg gcc atc cta aag gac cct aag ata ctg cta				3474	

Val Ala Ile Ala Arg Ala Ile Leu Lys Asp Pro Lys Ile Leu Leu
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Ile Val Gly Gly Ile Gly Leu Ser Phe Ser Asn Leu Met Leu Tyr Leu
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Thr Tyr Gly Leu Cys Phe Tyr Val Gly Ala Lys Phe Val Ser Gln Gly
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Lys Thr Thr Phe Ser Asp Val Phe Lys Val Phe Phe Ala Leu Val Leu
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Ala Ala Val Gly Val Ser Gln Ser Ser Ala Leu Xaa Thr Asn Ala Thr
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Xaa Ala Arg Asp Ser Ala Ile Ser Ile Phe Ser Ile Ile Asp Arg Lys
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Ser Arg Ile Asp Ser Ser Ser Asp Glu Gly Ala Ile Met Glu Asn Val
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Thr Gly Ser Ile Asp Phe Asn Asn Val Ser Phe Lys Tyr Pro Ser Arg
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Pro Asp Val Gln Ile Phe Ser Asp Phe Thr Leu His Ile Pro Ser
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Gln Lys Thr Ile Ala Leu Val Gly Glu Ser Gly Ser Gly Lys Ser
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Thr Ile Ile Ala Leu Leu Glu Arg Phe Tyr Asp Pro Asp Ser Gly
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Asn Ile Ser Leu Asp Gly Val Glu Ile Arg Ser Leu Lys Val Ser
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Trp Leu Arg Asp Gln Met Gly Leu Val Gly Gln Glu Pro Val Leu
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Phe Asn Xaa Thr Ile Arg Ala Asn Ile Thr Tyr Gly Lys His Ser
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Glu Val Thr Glu Glu Glu Ile Thr Ala Val Ala Lys Ala Ala Asn
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Ala His Glu Phe Val Ser Ser Leu Pro Gln Gly Tyr Asp Thr Val
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Val Gly Glu Lys Gly Val Gln Leu Ser Gly Gly Gln Lys Gln Arg
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	Phe Lys Ala Ile Phe Lys Ile Thr Leu Glu Val Pro Ser Glu Thr Val	
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	Phe Ala Gln Arg Ile Gly Trp Asp Ala Lys Ser Gly Glu Gly His Leu	
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 Glu Gly Leu Gly Lys Leu Lys Lys Phe Leu Ile Asp Phe Leu Glu Pro
 625 630 635 640
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 Phe Ala Gln Arg Ile Gly Trp Asp Ala Lys Ser Gly Glu Gly His Leu
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 Asp Ala Leu Leu Arg Gly Thr Leu Leu Thr Ala Leu Ala Glu Leu Gly
 660 665 670
 25
 His Glu Ala Thr Ile Asn Glu Ala Val Arg Arg Phe Asn Ile Phe Val
 675 680 685
 30
 Glu Asp Arg Glu Thr Pro Leu Leu Pro Pro Asp Val Arg Lys Ala Ala
 690 695 700
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 Tyr Val Ala Leu Met Gln Thr Val Asn Lys Ser Asn Arg Ala Gly Tyr
 705 710 715 720
 40
 Glu Ser Leu Leu Lys Ile Tyr Lys Glu Thr Asp Leu Ser Gln Glu Lys
 725 730 735
 Val Arg Ile Leu Gly Ser Leu Ala Ser Cys Pro Asp Pro Asp Val Val
 740 745 750
 45
 Arg Asp Thr Leu Asp Phe Met Leu Ser Pro Glu Val Arg Asn Gln Asp
 755 760 765
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 Ser Ile Phe Leu Leu Arg Gly Val Gly Ala Ala Gly His Glu Val Ala
 770 775 780
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 Trp Thr Trp Leu Lys Glu Lys Trp Asp Tyr Ile Ser Asp Thr Phe Ser
 785 790 795 800
 60
 Gly Thr Leu Leu Thr Tyr Phe Val Ser Thr Thr Val Ser Pro Leu Arg
 805 810 815
 Thr Asp Glu Met Gly Asp Asp Ala Glu Glu Phe Phe Lys Ser Arg Thr
 820 825 830
 65
 Lys Ala Asn Ile Ala Arg Thr Val Lys Gln Ser Ile Glu Arg Val Arg
 835 840 845

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      Ile Asn Ala Lys Trp Val Glu Ser Thr Arg Ala Glu Ala Asn Leu Gly
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  1                               5                               10                               15

25
  gat cac acg gat ggg ttg atg gat ttt gaa gat act gaa gtg aga tct      96
  Asp His Thr Asp Gly Leu Met Asp Phe Glu Asp Thr Glu Val Arg Ser
                               20                               25                               30

30
  tcg gag gaa act gat gct ttg gag gaa gct aga ttg gca atc gag caa      144
  Ser Glu Glu Thr Asp Ala Leu Glu Glu Ala Arg Leu Ala Ile Glu Gln
                               35                               40                               45

35
  gta gtg atc cca aaa ggt gaa agc gtg cag cta ctg ccc aga cca cca      192
  Val Val Ile Pro Lys Gly Glu Ser Val Gln Leu Leu Pro Arg Pro Pro
  50                               55                               60

40
  agc atc atc gct tcc cag gtg gat cta gtc gaa agt ttc aag ctc aag      240
  Ser Ile Ile Ala Ser Gln Val Asp Leu Val Glu Ser Phe Lys Leu Lys
  65                               70                               75                               80

45
  tgg gaa tct ata ggc cag gag cca aac gca tgc ctc aga att ctt ccg      288
  Trp Glu Ser Ile Gly Gln Glu Pro Asn Ala Cys Leu Arg Ile Leu Pro
                               85                               90                               95

50
  caa ttc gta ggc gtg gaa gaa ggc ggc aag tct gtc aag caa gaa gct      336
  Gln Phe Val Gly Val Glu Glu Gly Gly Lys Ser Val Lys Gln Glu Ala
                               100                               105                               110

55
  gca act gag ctc aca gat tca gac aat tca gat gac atg gac      378
  Ala Thr Glu Leu Thr Asp Ser Asp Asn Ser Asp Asp Met Asp
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  Asp His Thr Asp Gly Leu Met Asp Phe Glu Asp Thr Glu Val Arg Ser
                               20                               25                               30

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5	Val	Val	Ile	Pro	Lys	Gly	Glu	Ser	Val	Gln	Leu	Leu	Pro	Arg	Pro	Pro	
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	Trp	Arg	Asn	Gly	Asp	Leu	Lys	Pro	Tyr	Ala	Val	Val	Trp	Ile	Asp	Asp	
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45	ggc	gcc	aag	tgc	tcc	acc	cgc	gtc	gac	ctc	gac	aac	gcc	gac	aac	ccc	144
	Gly	Ala	Lys	Cys	Ser	Thr	Arg	Val	Asp	Leu	Asp	Asn	Ala	Asp	Asn	Pro	
			35					40					45				
50	acc	tgg	gat	gac	aag	ctc	acc	gtc	cct	ctc	ccg	ccc	tcc	acc	cgc	ctc	192
	Thr	Trp	Asp	Asp	Lys	Leu	Thr	Val	Pro	Leu	Pro	Pro	Ser	Thr	Arg	Leu	
		50					55					60					
55	gac	gac	gcc	gtc	ctc	tac	ctc	gac	gtc	gtc	cac	gcc	aac	gcc	acc	gac	240
	Asp	Asp	Ala	Val	Leu	Tyr	Leu	Asp	Val	Val	His	Ala	Asn	Ala	Thr	Asp	
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60	ggc	gtc	aag	ccc	ctc	gtc	ggc	tcc	gcg	cgc	ctc	ccg	ctc	cgc	gac	gtc	288
	Gly	Val	Lys	Pro	Leu	Val	Gly	Ser	Ala	Arg	Leu	Pro	Leu	Arg	Asp	Val	
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65	ctc	gcc	gac	acc	ggc	ata	ggc	gcc	cga	gcc	tcc	cgc	tcc	ctc	cgc	ctc	336
	Leu	Ala	Asp	Thr	Gly	Ile	Gly	Ala	Arg	Ala	Ser	Arg	Ser	Leu	Arg	Leu	
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65	aag	cgc	ccc	tcc	ggc	cgc	ccc	cat	gga	cgc	ctc	gaa	gtc	cgc	gtc	gcc	384
	Lys	Arg	Pro	Ser	Gly	Arg	Pro	His	Gly	Arg	Leu	Glu	Val	Arg	Val	Ala	
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	gtc	cgc	gag	ccc	aag	cgc	tac	tac	gac	ccc	tcg	ccg	gcg	tac	cct	gct	432

	Val	Arg	Glu	Pro	Lys	Arg	Tyr	Tyr	Asp	Pro	Ser	Pro	Ala	Tyr	Pro	Ala	
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5	ccc	tac	cac	cag	cag	acg	aac	cgt	gac	ccc	tac	gcc	tac	ggc	aac	act	480
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10	aca	act	ggc	ggc	tat	ggc	tat	gcc	tat	ggc	ggc	acc	cct	ttc	cta	taa	528
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50	Leu	Ala	Asp	Thr	Gly	Ile	Gly	Ala	Arg	Ala	Ser	Arg	Ser	Leu	Arg	Leu	
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55	Lys	Arg	Pro	Ser	Gly	Arg	Pro	His	Gly	Arg	Leu	Glu	Val	Arg	Val	Ala	
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	145					150					155				160		
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1          5          10          15

10
ctg gag cgc gaa tcg gtg atc ccc atc atg aag ccc aag ctc atc atg      96
Leu Glu Arg Glu Ser Val Ile Pro Ile Met Lys Pro Lys Leu Ile Met
          20          25          30

15
aag ctc gcc tac ctc atc gaa caa caa tct gac aga gaa gaa ttc ttg      144
Lys Leu Ala Tyr Leu Ile Glu Gln Gln Ser Asp Arg Glu Glu Phe Leu
          35          40          45

20
aag ctc tgc aag agg att gag tac acc att agg gcc tgg tat cat ctc      192
Lys Leu Cys Lys Arg Ile Glu Tyr Thr Ile Arg Ala Trp Tyr His Leu
          50          55          60

25
cag ttt gat gat atg atg gaa cta ttt gct ctt ttt gac cct gtt cat      240
Gln Phe Asp Asp Met Met Glu Leu Phe Ala Leu Phe Asp Pro Val His
65          70          75          80

30
ggg gcc caa aaa ctg caa cag cag aat ttc tcg act gag gaa gtc gat      288
Gly Ala Gln Lys Leu Gln Gln Gln Asn Phe Ser Thr Glu Glu Val Asp
          85          90          95

35
aca ctc gag cag aac ttc ctg acc tat ttc ttt cag gtg atg caa aaa      336
Thr Leu Glu Gln Asn Phe Leu Thr Tyr Phe Phe Gln Val Met Gln Lys
          100          105          110

40
agc aat ttc aac ata tta tca gat gat gag gtt gag ctt gct cat tct      384
Ser Asn Phe Asn Ile Leu Ser Asp Asp Glu Val Glu Leu Ala His Ser
          115          120          125

45
gga caa tat ctg ctg aat ctt ccc atc aaa gtt gat gaa gca aag tta      432
Gly Gln Tyr Leu Leu Asn Leu Pro Ile Lys Val Asp Glu Ala Lys Leu
          130          135          140

50
gat aac aaa ctt ttg tca aag tat ttt aaa gag cac cat cac gac aac      480
Asp Asn Lys Leu Leu Ser Lys Tyr Phe Lys Glu His His His Asp Asn
145          150          155          160

55
cta ccg gag ttc tca gat aag tat gtc ata ttc cgg agg ggc att gga      528
Leu Pro Glu Phe Ser Asp Lys Tyr Val Ile Phe Arg Arg Gly Ile Gly
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60
ctg gat cgc act agc aac ttt ttc ttt atg gag aaa gtg gac atg atc      576
Leu Asp Arg Thr Ser Asn Phe Phe Phe Met Glu Lys Val Asp Met Ile
          180          185          190

65
ata gct cgt gcg tgg cga tgg ttc ttg gag aaa aca aga ctg caa aag      624
Ile Ala Arg Ala Trp Arg Trp Phe Leu Glu Lys Thr Arg Leu Gln Lys
          195          200          205

70
ctc ttc tca aga aag aaa agt gtt agg cca aag aca gat tcc aag aag      672
Leu Phe Ser Arg Lys Lys Ser Val Arg Pro Lys Thr Asp Ser Lys Lys
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Asn Asp Asp Leu Val
225

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 10 Leu Glu Arg Glu Ser Val Ile Pro Ile Met Lys Pro Lys Leu Ile Met
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 15 Lys Leu Ala Tyr Leu Ile Glu Gln Gln Ser Asp Arg Glu Glu Phe Leu
 35 40 45
 20 Lys Leu Cys Lys Arg Ile Glu Tyr Thr Ile Arg Ala Trp Tyr His Leu
 50 55 60
 25 Gln Phe Asp Asp Met Met Glu Leu Phe Ala Leu Phe Asp Pro Val His
 65 70 75 80
 Gly Ala Gln Lys Leu Gln Gln Gln Asn Phe Ser Thr Glu Glu Val Asp
 85 90 95
 30 Thr Leu Glu Gln Asn Phe Leu Thr Tyr Phe Phe Gln Val Met Gln Lys
 100 105 110
 35 Ser Asn Phe Asn Ile Leu Ser Asp Asp Glu Val Glu Leu Ala His Ser
 115 120 125
 40 Gly Gln Tyr Leu Leu Asn Leu Pro Ile Lys Val Asp Glu Ala Lys Leu
 130 135 140
 45 Asp Asn Lys Leu Leu Ser Lys Tyr Phe Lys Glu His His His Asp Asn
 145 150 155 160
 Leu Pro Glu Phe Ser Asp Lys Tyr Val Ile Phe Arg Arg Gly Ile Gly
 165 170 175
 50 Leu Asp Arg Thr Ser Asn Phe Phe Phe Met Glu Lys Val Asp Met Ile
 180 185 190
 55 Ile Ala Arg Ala Trp Arg Trp Phe Leu Glu Lys Thr Arg Leu Gln Lys
 195 200 205
 60 Leu Phe Ser Arg Lys Lys Ser Val Arg Pro Lys Thr Asp Ser Lys Lys
 210 215 220
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15 tgc aaa ggt tgg aat tca gca tct att ttc att tat gaa tct gat gag 96
 Cys Lys Gly Trp Asn Ser Ala Ser Ile Phe Ile Tyr Glu Ser Asp Glu
 20 25 30

20 gaa atc cag tgc ctt ctt gac tgg tta aga gac tat gac cca agg gag 144
 Glu Ile Gln Cys Leu Leu Asp Trp Leu Arg Asp Tyr Asp Pro Arg Glu
 35 40 45

25 aag gaa ctg aaa gac tct atc ttg cag tgg caa aga cat ttc tgt cat 192
 Lys Glu Leu Lys Asp Ser Ile Leu Gln Trp Gln Arg His Phe Cys His
 50 55 60

30 caa agc agt tct cct ctc gtt gat cct cca att tct ggt cca aag ggt 240
 Gln Ser Ser Ser Pro Leu Val Asp Pro Pro Ile Ser Gly Pro Lys Gly
 65 70 75 80

35 gaa cag ctt atg gag ctt cca aat acc aag gct gca gta att ttg gaa 288
 Glu Gln Leu Met Glu Leu Pro Asn Thr Lys Ala Ala Val Ile Leu Glu
 85 90 95

40 caa aag tat ggt ctg caa ttg gac cag gac aca agt gat cta ccg aaa 336
 Gln Lys Tyr Gly Leu Gln Leu Asp Gln Asp Thr Ser Asp Leu Pro Lys
 100 105 110

45 aag cga gga aag aag ata aag tta agt tct gaa gat aga aca tat cgc 384
 Lys Arg Gly Lys Lys Ile Lys Leu Ser Ser Glu Asp Arg Thr Tyr Arg
 115 120 125

50 tgc gac tgt ttg gaa cct gta tgg cct tct cga tac cat tgt tta aca 432
 Cys Asp Cys Leu Glu Pro Val Trp Pro Ser Arg Tyr His Cys Leu Thr
 130 135 140

55 tgt cat gag act tat ctc ata tct aca gag ttt gag ggg cat aat gat 480
 Cys His Glu Thr Tyr Leu Ile Ser Thr Glu Phe Glu Gly His Asn Asp
 145 150 155 160

60 gga aaa tgc agt aaa atc cac cag tct cct gat gaa agc aga gaa aat 528
 Gly Lys Cys Ser Lys Ile His Gln Ser Pro Asp Glu Ser Arg Glu Asn
 165 170 175

65 gat gag cca aaa gtg aag gtt acc aaa tct gat acg aag gaa aaa gat 576
 Asp Glu Pro Lys Val Lys Val Thr Lys Ser Asp Thr Lys Glu Lys Asp
 180 185 190

70 tcc ctt gaa tgt agc tct gtc att gaa ccg tcc agt gac aga aaa ttg 624
 Ser Leu Glu Cys Ser Ser Val Ile Glu Pro Ser Ser Asp Arg Lys Leu
 195 200 205

75 atg caa tgc cca tat gac ttt gaa gaa att tgc aga aag ttc gtc aca 672
 Met Gln Cys Pro Tyr Asp Phe Glu Glu Ile Cys Arg Lys Phe Val Thr
 210 215 220

80 aat gat tcg aac aag gag aca gta aag cag att gga ctt aat ggg tcc 720
 Asn Asp Ser Asn Lys Glu Thr Val Lys Gln Ile Gly Leu Asn Gly Ser
 225 230 235 240

aat gga gtt cca tca ttt gtg cct tca cct gca ttt ttt ctt gaa cct 768
 Asn Gly Val Pro Ser Phe Val Pro Ser Pro Ala Phe Phe Leu Glu Pro
 245 250 255

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gca att gta caa agt caa aac mga aaa gat gat gaa ctg aag gat tgg 816
 Ala Ile Val Gln Ser Gln Asn Xaa Lys Asp Asp Glu Leu Lys Asp Trp
 260 265 270

10

acc tcc tct tta gag gaa tgc aat gca atg tct gct caa aag cta gtt 864
 Thr Ser Ser Leu Glu Glu Cys Asn Ala Met Ser Ala Gln Lys Leu Val
 275 280 285

15

caa gag gtt tcc aaa tct ggt caa agt tgt cct ggc aat gtg ggt gat 912
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 290 295 300

20

gag aag gtg caa aaa tct aaa aag ccc acc cct gat aat act tct ggt 960
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 305 310 315 320

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gag gaa gca cat tct aca aca ggc aag cca aca cga ttg cta gct gtt 1008
 Glu Glu Ala His Ser Thr Thr Gly Lys Pro Thr Arg Leu Leu Ala Val
 325 330 335

aat ggg ggg ttg gtt cca gag tca tcc ttg agg cct ctt ata gga cga 1056
 Asn Gly Gly Leu Val Pro Glu Ser Ser Leu Arg Pro Leu Ile Gly Arg
 340 345 350

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 355 360 365

35

gca gcc ttg cct gag gag gca ctg aga gcc tca aag tgt cag caa ata 1152
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aga agg cgt tca tgg 1167
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 <223> The 'Xaa' at location 264 stands for Arg.

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Cys Lys Gly Trp Asn Ser Ala Ser Ile Phe Ile Tyr Glu Ser Asp Glu
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65

Glu Ile Gln Cys Leu Leu Asp Trp Leu Arg Asp Tyr Asp Pro Arg Glu
 35 40 45

Lys Glu Leu Lys Asp Ser Ile Leu Gln Trp Gln Arg His Phe Cys His
 50 55 60

5 Gln Ser Ser Ser Pro Leu Val Asp Pro Pro Ile Ser Gly Pro Lys Gly
 65 70 75 80

 Glu Gln Leu Met Glu Leu Pro Asn Thr Lys Ala Ala Val Ile Leu Glu
 85 90 95
 10 Gln Lys Tyr Gly Leu Gln Leu Asp Gln Asp Thr Ser Asp Leu Pro Lys
 100 105 110

 15 Lys Arg Gly Lys Lys Ile Lys Leu Ser Ser Glu Asp Arg Thr Tyr Arg
 115 120 125

 20 Cys Asp Cys Leu Glu Pro Val Trp Pro Ser Arg Tyr His Cys Leu Thr
 130 135 140

 Cys His Glu Thr Tyr Leu Ile Ser Thr Glu Phe Glu Gly His Asn Asp
 145 150 155 160
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 Gly Lys Cys Ser Lys Ile His Gln Ser Pro Asp Glu Ser Arg Glu Asn
 165 170 175
 30
 Asp Glu Pro Lys Val Lys Val Thr Lys Ser Asp Thr Lys Glu Lys Asp
 180 185 190

 35 Ser Leu Glu Cys Ser Ser Val Ile Glu Pro Ser Ser Asp Arg Lys Leu
 195 200 205

 40 Met Gln Cys Pro Tyr Asp Phe Glu Glu Ile Cys Arg Lys Phe Val Thr
 210 215 220

 Asn Asp Ser Asn Lys Glu Thr Val Lys Gln Ile Gly Leu Asn Gly Ser
 225 230 235 240
 45
 Asn Gly Val Pro Ser Phe Val Pro Ser Pro Ala Phe Phe Leu Glu Pro
 245 250 255
 50
 Ala Ile Val Gln Ser Gln Asn Xaa Lys Asp Asp Glu Leu Lys Asp Trp
 260 265 270

 55 Thr Ser Ser Leu Glu Glu Cys Asn Ala Met Ser Ala Gln Lys Leu Val
 275 280 285

 60 Gln Glu Val Ser Lys Ser Gly Gln Ser Cys Pro Gly Asn Val Gly Asp
 290 295 300

 Glu Lys Val Gln Lys Ser Lys Lys Pro Thr Pro Asp Asn Thr Ser Gly
 305 310 315 320
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 Glu Glu Ala His Ser Thr Thr Gly Lys Pro Thr Arg Leu Leu Ala Val
 325 330 335

Asn Gly Gly Leu Val Pro Glu Ser Ser Leu Arg Pro Leu Ile Gly Arg
 340 345 350
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Asn Ser His Ile Leu Lys Gln Gln Lys Ile Asn Leu Leu Asp Ile Glu
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Ala Ala Leu Pro Glu Glu Ala Leu Arg Ala Ser Lys Cys Gln Gln Ile
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Arg Arg Arg Ser Trp
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35 gat gaa aac tgg gag gct gcc ttg gag cac aac cct gaa gca ttt gct 96
 Asp Glu Asn Trp Glu Ala Ala Leu Glu His Asn Pro Glu Ala Phe Ala
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40 cga gtg gtt atg ctg tat gtg gac atg gaa gtc aat ggt gta cct ttg 144
 Arg Val Val Met Leu Tyr Val Asp Met Glu Val Asn Gly Val Pro Leu
 35 40 45

aag gcc ttt gtt gac agt gga gca caa tca act atc ata tca aaa agc 192
 Lys Ala Phe Val Asp Ser Gly Ala Gln Ser Thr Ile Ile Ser Lys Ser
 50 55 60

45 tgt gcc gaa cgt tgc ggg ttg ctt agg ctg ctt gat cag cga tat aga 240
 Cys Ala Glu Arg Cys Gly Leu Leu Arg Leu Leu Asp Gln Arg Tyr Arg
 65 70 75 80

50 ggt gtt gct att ggc gtt ggt caa tca gag att ctt ggt aga ata cat 288
 Gly Val Ala Ile Gly Val Gly Gln Ser Glu Ile Leu Gly Arg Ile His
 85 90 95

55 gta gcc cca ata aag att ggc cat gtc ttc tat cct tgt tca ttc aca 336
 Val Ala Pro Ile Lys Ile Gly His Val Phe Tyr Pro Cys Ser Phe Thr
 100 105 110

gta ttg gat gct ccc aat atg gaa ttt ctt ttt ggg ctt gat atg ctg 384
 Val Leu Asp Ala Pro Asn Met Glu Phe Leu Phe Gly Leu Asp Met Leu
 115 120 125

60 cgg aaa cat cag tgc ata att gac tta aaa gac aat gtt ctt aga gta 432
 Arg Lys His Gln Cys Ile Ile Asp Leu Lys Asp Asn Val Leu Arg Val
 130 135 140

65 gga ggt ggt gag gtt tca gtg ccc ttc tta caa gag aaa gac atc cct 480
 Gly Gly Gly Glu Val Ser Val Pro Phe Leu Gln Glu Lys Asp Ile Pro
 145 150 155 160

tca cat ata cgt gat gaa gag aaa cta tcg aag cta gca tct ctc agc 528
 Ser His Ile Arg Asp Glu Glu Lys Leu Ser Lys Leu Ala Ser Leu Ser
 165 170 175

5

caa gga gct gct gga gaa tcg tca acg gca cgg gag aag act cct gat 576
 Gln Gly Ala Ala Gly Glu Ser Ser Thr Ala Arg Glu Lys Thr Pro Asp
 180 185 190

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gcg cca cca cga gct cct act aca ggt gct cca gct gtg aat cct ccg 624
 Ala Pro Pro Arg Ala Pro Thr Thr Gly Ala Pro Ala Val Asn Pro Pro
 195 200 205

15

caa cca cag gga gga gga gat ttc gaa gca aaa gtc acg aaa ctg gtg 672
 Gln Pro Gln Gly Gly Gly Asp Phe Glu Ala Lys Val Thr Lys Leu Val
 210 215 220

20

gaa ctt gga ttc gac cgg gca tcc gta atc caa gct ctc aag ttg ttc 720
 Glu Leu Gly Phe Asp Arg Ala Ser Val Ile Gln Ala Leu Lys Leu Phe
 225 230 235 240

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 Asn Gly

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Asp Glu Asn Trp Glu Ala Ala Leu Glu His Asn Pro Glu Ala Phe Ala
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Arg Val Val Met Leu Tyr Val Asp Met Glu Val Asn Gly Val Pro Leu
 35 40 45

45

Lys Ala Phe Val Asp Ser Gly Ala Gln Ser Thr Ile Ile Ser Lys Ser
 50 55 60

50

Cys Ala Glu Arg Cys Gly Leu Leu Arg Leu Leu Asp Gln Arg Tyr Arg
 65 70 75 80

55

Gly Val Ala Ile Gly Val Gly Gln Ser Glu Ile Leu Gly Arg Ile His
 85 90 95

60

Val Ala Pro Ile Lys Ile Gly His Val Phe Tyr Pro Cys Ser Phe Thr
 100 105 110

Val Leu Asp Ala Pro Asn Met Glu Phe Leu Phe Gly Leu Asp Met Leu
 115 120 125

65

Arg Lys His Gln Cys Ile Ile Asp Leu Lys Asp Asn Val Leu Arg Val
 130 135 140

Gly Gly Gly Glu Val Ser Val Pro Phe Leu Gln Glu Lys Asp Ile Pro
 145 150 155 160

5 Ser His Ile Arg Asp Glu Glu Lys Leu Ser Lys Leu Ala Ser Leu Ser
 165 170 175

10 Gln Gly Ala Ala Gly Glu Ser Ser Thr Ala Arg Glu Lys Thr Pro Asp
 180 185 190

15 Ala Pro Pro Arg Ala Pro Thr Thr Gly Ala Pro Ala Val Asn Pro Pro
 195 200 205

20 Gln Pro Gln Gly Gly Gly Asp Phe Glu Ala Lys Val Thr Lys Leu Val
 210 215 220

Glu Leu Gly Phe Asp Arg Ala Ser Val Ile Gln Ala Leu Lys Leu Phe
 225 230 235 240

25 Asn Gly

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 1 5 10 15

45 tct gat ccg tgg cct agt ata tct gat agt gct aaa gat cta gtc cgt 96
 Ser Asp Pro Trp Pro Ser Ile Ser Asp Ser Ala Lys Asp Leu Val Arg
 20 25 30

50 aat atg ctt atc cgt gat cct aca aag aga ttt act gct cac gag gtt 144
 Asn Met Leu Ile Arg Asp Pro Thr Lys Arg Phe Thr Ala His Glu Val
 35 40 45

55 ctc tgt cat cca tgg att gtt gat gat gct gtg gca cct gat aag cct 192
 Leu Cys His Pro Trp Ile Val Asp Asp Ala Val Ala Pro Asp Lys Pro
 50 55 60

60 att gat tct gct gtt ttg tca agg ctg aaa cac ttt tct gca atg aac 240
 Ile Asp Ser Ala Val Leu Ser Arg Leu Lys His Phe Ser Ala Met Asn
 65 70 75 80

aag ctc aag aag atg gct ttg agg gtt att gct gaa agc cta tct gaa 288
 Lys Leu Lys Lys Met Ala Leu Arg Val Ile Ala Glu Ser Leu Ser Glu
 85 90 95

65 gaa gag atc gga ggt ttg aag gaa ttg ttt aaa atg atc gat act gac 336
 Glu Glu Ile Gly Gly Leu Lys Glu Leu Phe Lys Met Ile Asp Thr Asp
 100 105 110

	aat agt ggg acg ata act tat gat gaa ctg aag aat ggc ctg aaa agg	384
	Asn Ser Gly Thr Ile Thr Tyr Asp Glu Leu Lys Asn Gly Leu Lys Arg	
	115 120 125	
5	gtg ggc tca gat cta atg gaa cca gaa atc cag gct tta atg gat gcc	432
	Val Gly Ser Asp Leu Met Glu Pro Glu Ile Gln Ala Leu Met Asp Ala	
	130 135 140	
10	gct gat att gac aac agt gga acc atc gac tat ggt gaa ttc tta gca	480
	Ala Asp Ile Asp Asn Ser Gly Thr Ile Asp Tyr Gly Glu Phe Leu Ala	
	145 150 155 160	
15	gct act ttg cac atg aat aaa ctg gag agg gag gaa aac ttg gtg tca	528
	Ala Thr Leu His Met Asn Lys Leu Glu Arg Glu Glu Asn Leu Val Ser	
	165 170 175	
20	gca ttc acg ttc ttt gat aag gat gga agt ggc ttc ata acc att gat	576
	Ala Phe Thr Phe Phe Asp Lys Asp Gly Ser Gly Phe Ile Thr Ile Asp	
	180 185 190	
25	gag ctc tcg caa gcc tgc gaa cag ttt ggc ctt tct gat gtt cat ctt	624
	Glu Leu Ser Gln Ala Cys Glu Gln Phe Gly Leu Ser Asp Val His Leu	
	195 200 205	
30	gag gat atg atc aaa gat gtg gat caa aat aat gat gga caa att gat	672
	Glu Asp Met Ile Lys Asp Val Asp Gln Asn Asn Asp Gly Gln Ile Asp	
	210 215 220	
35	tac agc gag ttt gcc gcg atg atg aga aag ggc aat gct ggt gga gcc	720
	Tyr Ser Glu Phe Ala Ala Met Met Arg Lys Gly Asn Ala Gly Gly Ala	
	225 230 235 240	
40	aat gct ggt gga gtc act tct act ggt gga aca gga agg a	760
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	<400> 86	
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	20 25 30	
55	Asn Met Leu Ile Arg Asp Pro Thr Lys Arg Phe Thr Ala His Glu Val	
	35 40 45	
60	Leu Cys His Pro Trp Ile Val Asp Asp Ala Val Ala Pro Asp Lys Pro	
	50 55 60	
65	Ile Asp Ser Ala Val Leu Ser Arg Leu Lys His Phe Ser Ala Met Asn	
	65 70 75 80	
70	Lys Leu Lys Lys Met Ala Leu Arg Val Ile Ala Glu Ser Leu Ser Glu	
	85 90 95	

Glu Glu Ile Gly Gly Leu Lys Glu Leu Phe Lys Met Ile Asp Thr Asp
 100 105 110

5 Asn Ser Gly Thr Ile Thr Tyr Asp Glu Leu Lys Asn Gly Leu Lys Arg
 115 120 125

10 Val Gly Ser Asp Leu Met Glu Pro Glu Ile Gln Ala Leu Met Asp Ala
 130 135 140

15 Ala Asp Ile Asp Asn Ser Gly Thr Ile Asp Tyr Gly Glu Phe Leu Ala
 145 150 155 160

Ala Thr Leu His Met Asn Lys Leu Glu Arg Glu Glu Asn Leu Val Ser
 165 170 175

20 Ala Phe Thr Phe Phe Asp Lys Asp Gly Ser Gly Phe Ile Thr Ile Asp
 180 185 190

25 Glu Leu Ser Gln Ala Cys Glu Gln Phe Gly Leu Ser Asp Val His Leu
 195 200 205

30 Glu Asp Met Ile Lys Asp Val Asp Gln Asn Asn Asp Gly Gln Ile Asp
 210 215 220

35 Tyr Ser Glu Phe Ala Ala Met Met Arg Lys Gly Asn Ala Gly Gly Ala
 225 230 235 240

Asn Ala Gly Gly Val Thr Ser Thr Gly Gly Thr Gly Arg
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55 cgg gcc tcg cgg gtt agc ccc gtc gtg gtc gcc gcc ggc ggc ggg cac 96
 Arg Ala Ser Arg Val Ser Pro Val Val Val Ala Ala Gly Gly Gly His
 20 25 30

60 cag cgg ctt atg ggg tcg ttg act aac acc cag ggg ctc agg ttt gga 144
 Gln Arg Leu Met Gly Ser Leu Thr Asn Thr Gln Gly Leu Arg Phe Gly
 35 40 45

65 gtg gtt gtg gca cgg ttc aat gag att gtc acc aac ttg cta ctg cag 192
 Val Val Val Ala Arg Phe Asn Glu Ile Val Thr Asn Leu Leu Leu Gln
 50 55 60

gga gct ctt gag aca ttt gag aga tat tcc gtc aaa aaa gaa aat ata 240

Gly Ala Leu Glu Thr Phe Glu Arg Tyr Ser Val Lys Lys Glu Asn Ile
 65 70 75 80

5 aca gtt cta agt gtt cct ggc agt ttt gaa att cct gtt gcg gca caa 288
 Thr Val Leu Ser Val Pro Gly Ser Phe Glu Ile Pro Val Ala Ala Gln
 85 90 95

10 aag ctt ggg aag tct gga aag ttt gat gcc aat ttt gtg cat tgg cgc 336
 Lys Leu Gly Lys Ser Gly Lys Phe Asp Ala Asn Phe Val His Trp Arg
 100 105 110

15 tgt gca ttc aga ggt gac aca acc cac tac ggt gct gtt gca aac tct 384
 Cys Ala Phe Arg Gly Asp Thr Thr His Tyr Gly Ala Val Ala Asn Ser
 115 120 125

gct gct tca ggt gta ctg tct gct gga ttg tct gct gag atc cca tgc 432
 Ala Ala Ser Gly Val Leu Ser Ala Gly Leu Ser Ala Glu Ile Pro Cys
 130 135 140

20 ata ttt ggt gtt ctg aca tgt gat gac atg gac cag gct cta aat cgt 480
 Ile Phe Gly Val Leu Thr Cys Asp Asp Met Asp Gln Ala Leu Asn Arg
 145 150 155 160

25 gct ggt ggt aag gct gga aac aag gga gct gaa gcc gct cta act gca 528
 Ala Gly Gly Lys Ala Gly Asn Lys Gly Ala Glu Ala Ala Leu Thr Ala
 165 170 175

30 atc gag atg gcc tcg ctg ttc cag cat cac ctg gcc tga 567
 Ile Glu Met Ala Ser Leu Phe Gln His His Leu Ala
 180 185

35 <210> 88
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 20 25 30

50 Gln Arg Leu Met Gly Ser Leu Thr Asn Thr Gln Gly Leu Arg Phe Gly
 35 40 45

Val Val Val Ala Arg Phe Asn Glu Ile Val Thr Asn Leu Leu Leu Gln
 50 55 60

55 Gly Ala Leu Glu Thr Phe Glu Arg Tyr Ser Val Lys Lys Glu Asn Ile
 65 70 75 80

60 Thr Val Leu Ser Val Pro Gly Ser Phe Glu Ile Pro Val Ala Ala Gln
 85 90 95

65 Lys Leu Gly Lys Ser Gly Lys Phe Asp Ala Asn Phe Val His Trp Arg
 100 105 110

Cys Ala Phe Arg Gly Asp Thr Thr His Tyr Gly Ala Val Ala Asn Ser

	115	120	125	
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10	Ile Phe Gly Val Leu Thr Cys Asp Asp Met Asp Gln Ala Leu Asn Arg 145 150 155 160			
15	Ala Gly Gly Lys Ala Gly Asn Lys Gly Ala Glu Ala Ala Leu Thr Ala 165 170 175			
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45	cgt gaa gga atc ttt gtt gtt agc cat tct gat gga aat ctg tat gtg Arg Glu Gly Ile Phe Val Val Ser His Ser Asp Gly Asn Leu Tyr Val 35 40 45	144		
50	tac gat aaa tgc aaa gat gga aac act gag tgt aca ttc cca gct ata Tyr Asp Lys Cys Lys Asp Gly Asn Thr Glu Cys Thr Phe Pro Ala Ile 50 55 60	192		
55	aag gat ccg gct cag tta atg att tca cat gca aag tcc agc aag agc Lys Asp Pro Ala Gln Leu Met Ile Ser His Ala Lys Ser Ser Lys Ser 65 70 75 80	240		
60	aac cca att gct aga tgg cat gtt tgc caa ggt tca atc aac gcc atc Asn Pro Ile Ala Arg Trp His Val Cys Gln Gly Ser Ile Asn Ala Ile 85 90 95	288		
65	tcc ttt tca cca gat gga gca tat tta gca act gtt ggg cga gat ggt Ser Phe Ser Pro Asp Gly Ala Tyr Leu Ala Thr Val Gly Arg Asp Gly 100 105 110	336		
70	tat ttg aga gtg ttt gac ttt tcg aag gag caa cta ata ttt ggt ggg Tyr Leu Arg Val Phe Asp Phe Ser Lys Glu Gln Leu Ile Phe Gly Gly 115 120 125	384		
75	aaa agt tat tat ggt gca cta ttg tgt tgc aca tgg agc tcg gat ggc Lys Ser Tyr Tyr Gly Ala Leu Leu Cys Cys Thr Trp Ser Ser Asp Gly 130 135 140	432		
80	aaa tat ctg ttg act ggt ggt gaa gat gat ctt gtg cag gta tgg agc Lys Tyr Leu Leu Thr Gly Gly Glu Asp Asp Leu Val Gln Val Trp Ser 145 150 155 160	480		

145 150 155 160
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 10 <212> PRT
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 1 5 10 15

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 Arg Glu Gly Ile Phe Val Val Ser His Ser Asp Gly Asn Leu Tyr Val
 25 35 40 45

 Tyr Asp Lys Cys Lys Asp Gly Asn Thr Glu Cys Thr Phe Pro Ala Ile
 50 55 60
 30
 Lys Asp Pro Ala Gln Leu Met Ile Ser His Ala Lys Ser Ser Lys Ser
 65 70 75 80
 35 Asn Pro Ile Ala Arg Trp His Val Cys Gln Gly Ser Ile Asn Ala Ile
 85 90 95
 40 Ser Phe Ser Pro Asp Gly Ala Tyr Leu Ala Thr Val Gly Arg Asp Gly
 100 105 110
 Tyr Leu Arg Val Phe Asp Phe Ser Lys Glu Gln Leu Ile Phe Gly Gly
 115 120 125
 45
 Lys Ser Tyr Tyr Gly Ala Leu Leu Cys Cys Thr Trp Ser Ser Asp Gly
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 55 Met Asp Asp Arg Lys Ile Val Ala Trp
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10	agg gtc tcc cac ggc gcc tcc ttc cgc gac gtc gcc gtg ccg gcg cac Arg Val Ser His Gly Ala Ser Phe Arg Asp Val Ala Val Pro Ala His 20 25 30 96	
15	tcc acc ttc ggt gaa ttg aag ggg gtc ctt acc cag gca act ggc gta Ser Thr Phe Gly Glu Leu Lys Gly Val Leu Thr Gln Ala Thr Gly Val 35 40 45 144	
20	gag cct gaa agg cag agg ctc ttc ttc cgt ggg aag gag aag agt gac Glu Pro Glu Arg Gln Arg Leu Phe Phe Arg Gly Lys Glu Lys Ser Asp 50 55 60 192	
25	aat gag ttc ctg cat aca gct ggg gtc aag gat gga gca aaa ctt ctt Asn Glu Phe Leu His Thr Ala Gly Val Lys Asp Gly Ala Lys Leu Leu 65 70 75 80 240	
30	cta ctt gag aag cct gcc cct gcc aat gta gag cag agg gcc gag cca Leu Leu Glu Lys Pro Ala Pro Ala Asn Val Glu Gln Arg Ala Glu Pro 85 90 95 288	
35	gta att atg gat gag agc atg atg aag gct tgt gag gct gtt ggc cgt Val Ile Met Asp Glu Ser Met Met Lys Ala Cys Glu Ala Val Gly Arg 100 105 110 336	
40	gta aga gct gaa gtt gac aga ctc tct gcc aag gta tgt gat ttg gag Val Arg Ala Glu Val Asp Arg Leu Ser Ala Lys Val Cys Asp Leu Glu 115 120 125 384	
45	aag agt gtg ttt gca ggg aga aag att gag gat aaa gat ttt gtt gtc Lys Ser Val Phe Ala Gly Arg Lys Ile Glu Asp Lys Asp Phe Val Val 130 135 140 432	
50	ttg acg gag ctt ctt atg atg gag ctg ctg aaa ctt gat ggc ata gag Leu Thr Glu Leu Leu Met Met Glu Leu Leu Lys Leu Asp Gly Ile Glu 145 150 155 160 480	
55	gca gag gga gaa gca agg gca caa agg aag gct gag gta cgc cgt gtc Ala Glu Gly Glu Ala Arg Ala Gln Arg Lys Ala Glu Val Arg Arg Val 165 170 175 528	
60	caa ggt ctt gtg gag acg ttg gat aag ctg aag gca aga aat gcc aat Gln Gly Leu Val Glu Thr Leu Asp Lys Leu Lys Ala Arg Asn Ala Asn 180 185 190 576	
65	ccc ttc agc gat caa aac aaa tct gtt tca gtg aca acg cag tgg gag Pro Phe Ser Asp Gln Asn Lys Ser Val Ser Val Thr Thr Gln Trp Glu 195 200 205 624	
70	acg ttc gac aat ggc atg ggc agc ttg aat gca ccc cca cca cgg gtt Thr Phe Asp Asn Gly Met Gly Ser Leu Asn Ala Pro Pro Pro Arg Val 210 215 220 672	
75	tct tcc aca caa ata aac acc gac tgg gag caa ttc gac tag Ser Ser Thr Gln Ile Asn Thr Asp Trp Glu Gln Phe Asp 225 230 235 714	
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<400> 92		

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 5 Arg Val Ser His Gly Ala Ser Phe Arg Asp Val Ala Val Pro Ala His
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 10 Ser Thr Phe Gly Glu Leu Lys Gly Val Leu Thr Gln Ala Thr Gly Val
 35 40 45
 15 Glu Pro Glu Arg Gln Arg Leu Phe Phe Arg Gly Lys Glu Lys Ser Asp
 50 55 60
 20 Asn Glu Phe Leu His Thr Ala Gly Val Lys Asp Gly Ala Lys Leu Leu
 65 70 75 80
 Leu Leu Glu Lys Pro Ala Pro Ala Asn Val Glu Gln Arg Ala Glu Pro
 85 90 95
 25 Val Ile Met Asp Glu Ser Met Met Lys Ala Cys Glu Ala Val Gly Arg
 100 105 110
 30 Val Arg Ala Glu Val Asp Arg Leu Ser Ala Lys Val Cys Asp Leu Glu
 115 120 125
 35 Lys Ser Val Phe Ala Gly Arg Lys Ile Glu Asp Lys Asp Phe Val Val
 130 135 140
 40 Leu Thr Glu Leu Leu Met Met Glu Leu Leu Lys Leu Asp Gly Ile Glu
 145 150 155 160
 Ala Glu Gly Glu Ala Arg Ala Gln Arg Lys Ala Glu Val Arg Arg Val
 165 170 175
 45 Gln Gly Leu Val Glu Thr Leu Asp Lys Leu Lys Ala Arg Asn Ala Asn
 180 185 190
 50 Pro Phe Ser Asp Gln Asn Lys Ser Val Ser Val Thr Thr Gln Trp Glu
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 55 Thr Phe Asp Asn Gly Met Gly Ser Leu Asn Ala Pro Pro Pro Arg Val
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 60 Ser Ser Thr Gln Ile Asn Thr Asp Trp Glu Gln Phe Asp
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 10 cgg gag gtg agc tcg gag gcg gtg ttc cgg tgc gtg cgg ctg ggg ccg 96
 Arg Glu Val Ser Ser Glu Ala Val Phe Arg Cys Val Arg Leu Gly Pro
 20 25 30

 15 gtc gac cag gcc gag gcg gag gtc gcg tac cag acg gcc gtc agc atc 144
 Val Asp Gln Ala Glu Ala Glu Val Ala Tyr Gln Thr Ala Val Ser Ile
 35 40 45

 20 ggc ggc cac gtg ttc aag ggc atc ctg cac gac gtc ggc ccc gaa gcc 192
 Gly Gly His Val Phe Lys Gly Ile Leu His Asp Val Gly Pro Glu Ala
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 25 ctg gcg gtc gcc ggc ggc ggc ggc gcc agc gag tac cac ttc cgc ctc 240
 Leu Ala Val Ala Gly Gly Gly Gly Ala Ser Glu Tyr His Phe Arg Leu
 65 70 75 80

 30 acc ggc gac ggg tcc tcg ccg agc acc gcc gcg gcc ggc gag gca ggc 288
 Thr Gly Asp Gly Ser Ser Pro Ser Thr Ala Ala Ala Gly Glu Ala Gly
 85 90 95

 35 tcc ggc ggc ggc ggc aac atc atc gtg tca tcg gct gtg gtg atg gac 336
 Ser Gly Gly Gly Gly Asn Ile Ile Val Ser Ser Ala Val Val Met Asp
 100 105 110

 40 ccg tac ccg acg ccc ggg ccc tac ggc gcg ttc ccc gcc ggc acg cca 384
 Pro Tyr Pro Thr Pro Gly Pro Tyr Gly Ala Phe Pro Ala Gly Thr Pro
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 45 ttc ttc cac ggc cac ccg cgg ccg tga 411
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 130 135

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 <213> *Oryza sativa*

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 55 Arg Glu Val Ser Ser Glu Ala Val Phe Arg Cys Val Arg Leu Gly Pro
 20 25 30

 60 Val Asp Gln Ala Glu Ala Glu Val Ala Tyr Gln Thr Ala Val Ser Ile
 35 40 45

 65 Gly Gly His Val Phe Lys Gly Ile Leu His Asp Val Gly Pro Glu Ala
 50 55 60

 70 Leu Ala Val Ala Gly Gly Gly Gly Ala Ser Glu Tyr His Phe Arg Leu
 65 70 75 80

	Thr Gly Asp Gly Ser Ser Pro Ser Thr Ala Ala Ala Gly Glu Ala Gly	
	85 90 95	
5	Ser Gly Gly Gly Gly Asn Ile Ile Val Ser Ser Ala Val Val Met Asp	
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	20 25 30	
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	35 40 45	
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	50 55 60	
50	aaa cat gat gat cct gtg gtt gtt aat caa tcc ata gct agt ggg aca Lys His Asp Asp Pro Val Val Val Asn Gln Ser Ile Ala Ser Gly Thr	240
	65 70 75 80	
55	aat tta ttt gct gct gta ttg gaa gag atg aca ctt cag att aat aag Asn Leu Phe Ala Ala Val Leu Glu Glu Met Thr Leu Gln Ile Asn Lys	288
	85 90 95	
60	tgt gga agg gtt gat gct tgg ctt gaa gag atg tgg gct tgg acg aag Cys Gly Arg Val Asp Ala Trp Leu Glu Glu Met Trp Ala Trp Thr Lys	336
	100 105 110	
65	cag ttt aaa gat gca gtc cat aat ctg atc cat gag tct gtc cca gtt Gln Phe Lys Asp Ala Val His Asn Leu Ile His Glu Ser Val Pro Val	384
	115 120 125	
70	gct act aaa ctg ttt gct gta aag ttc att gaa aca tgg atc ctg tgt Ala Thr Lys Leu Phe Ala Val Lys Phe Ile Glu Thr Trp Ile Leu Cys	432
	130 135 140	
75	ttc gca cct caa tcc aaa agt gac cgg atg cag cca act gaa gga agg Phe Ala Pro Gln Ser Lys Ser Asp Arg Met Gln Pro Thr Glu Gly Arg	480
	145 150 155 160	
80	aac agg agg ttg ttt gat agt tca aga tta tct caa ttc cat ccc agc	528

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	Leu	Asn	Pro	Ala	Val	Leu	Glu	Ala	Asp	Ala	Asn	Arg	Ala	Leu	Ile	Leu	
				180					185					190			
10	ctt	gtg	gat	ata	ctg	cag	tca	gct	tgt	gct	cat	caa	gga	tcc	ttc	cta	624
	Leu	Val	Asp	Ile	Leu	Gln	Ser	Ala	Cys	Ala	His	Gln	Gly	Ser	Phe	Leu	
				195				200					205				
15	ggt	ggc	acc	att	aat	tct	ctt	gca	gct	att	gca	aag	aat	aga	cct	ggt	672
	Val	Gly	Thr	Ile	Asn	Ser	Leu	Ala	Ala	Ile	Ala	Lys	Asn	Arg	Pro	Val	
			210				215					220					
20	tac	tac	gaa	cgc	ata	ctg	cca	gtg	cta	ctt	ggg	ttt	gac	cct	agt	ttg	720
	Tyr	Tyr	Glu	Arg	Ile	Leu	Pro	Val	Leu	Leu	Gly	Phe	Asp	Pro	Ser	Leu	
	225					230					235					240	
25	gag	gtt	gca	aaa	gga	gct	cat	cct	gca	agt	ctg	cgg	tat	tcc	ctg	aaa	768
	Glu	Val	Ala	Lys	Gly	Ala	His	Pro	Ala	Ser	Leu	Arg	Tyr	Ser	Leu	Lys	
					245				250						255		
30	aca	gct	ttt	tta	ggg	ttt	cta	agg	agt	cct	tgc	cag	gca	atg	att	gag	816
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	Lys Gly Gly Leu Tyr Thr Leu Asp Val Ser Ser Val Tyr Lys Tyr Lys	
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	Ser Thr Leu Val Asp Val Lys Val Asp Thr Glu Ser Asn Ile Ser Thr	
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	Val Lys Leu Pro Asp Tyr Asn Ser Gly Lys Val Glu Met Gln Tyr Phe	
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	His Glu Asn Ala Ser Phe Ala Thr Ala Val Gly Met Lys Pro Ser Pro	
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	Val Val Glu Phe Ser Gly Thr Ala Gly Ala Gln Gly Leu Ala Phe Gly	
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	Ala Ala Ile Gly Val Thr Lys Pro Asp Tyr His Ala Ala Ile Val Leu	
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	Ala Asp Lys Gly Asp Thr Val Lys Val Ser Gly Val Tyr His Leu Asp	
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	Asp Lys Gln Lys Ser Ser Val Val Ala Glu Leu Thr Arg Arg Leu Ser	
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	Thr Asn Glu Asn Thr Leu Thr Val Gly Gly Leu Tyr Lys Val Asp Pro	
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	Glu Phe Asp Thr Lys Ala Leu Asp Arg Pro Pro Lys Phe Gly Leu Ala	
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 225 230 235 240
 65 Leu Leu Gln His Glu Val Lys Pro Lys Ser Val Leu Thr Ile Ser Gly
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 Ile Leu Gly Val Pro Lys Thr Ala Ser Gln Asp Asp Leu Lys Lys Ala
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 tac cgc aag gcc gcc atc aag aac cac ccc gac aag ggc ggc gac ccc 144
 Tyr Arg Lys Ala Ala Ile Lys Asn His Pro Asp Lys Gly Gly Asp Pro
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 Glu Lys Phe Lys Glu Leu Ala Gln Ala Tyr Glu Val Leu Ser Asp Pro
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 Val Leu Cys Ala Lys Cys Lys Gly Lys Gly Ser Lys Ser Gly Ala Ser
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	Cys Lys Gly Glu Lys Val Ile Gln Glu Lys Lys Val Leu Glu Val His	
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	Gln Gln Lys Asp His Ser Lys Phe Lys Arg Lys Gly Asp Asp Leu Phe	
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	Gly Glu Val Val Lys Pro Asp Gln Phe Lys Ala Ile Asn Asp Glu Gly	
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	Met Pro Met Tyr Gln Arg Pro Phe Met Lys Gly Lys Leu Tyr Ile His	
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	Phe Thr Val Glu Phe Pro Asp Ser Leu Ala Pro Glu Gln Cys Lys Ala	
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	Leu Glu Ala Val Leu Pro Pro Lys Pro Ala Ser Gln Leu Thr Glu Met	
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	Lys	Thr	Thr	Tyr	Gln	Tyr	Asp	Ala	Val	Phe	Ala	Leu	Gly	Phe	Val	Thr	
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	Val	Tyr	Asp	Gln	Leu	Met	Glu	Gly	Tyr	Pro	Ser	Asn	Glu	Asp	Arg	Asp	
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45	Gly Asn Ser Leu Val Glu Phe Ser Ser Lys Asp Gly Glu Ile Glu Ala		
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 85 90 95

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cag att tgg ggt cgc cct gag tca gat gtg caa gtg cag aca caa acc 336
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 100 105 110

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cgt gca cgc acg gtt caa cct ccg gca gct aat gaa gag aag tcc tgg 432
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 130 135 140

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gac aac att cgt gaa gct aaa gca gca cat gct tca agt ggt cgg caa 480
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5	aag gat gtt att tct ctc ata ttt gag aag gct gtt ttt gag ccc acc Lys Asp Val Ile Ser Leu Ile Phe Glu Lys Ala Val Phe Glu Pro Thr	245	250	255	768
10	ttc tgt ccg atg tat gct caa ctt tgt tcc gat ctc aat gag aag cta Phe Cys Pro Met Tyr Ala Gln Leu Cys Ser Asp Leu Asn Glu Lys Leu	260	265	270	816
15	cca tca ttc cct tcg gaa gaa cca ggt ggc aaa gag att acg ttc aag Pro Ser Phe Pro Ser Glu Glu Pro Gly Gly Lys Glu Ile Thr Phe Lys	275	280	285	864
20	cgc gtg ctg ttg aac aat tgt cag gaa gca ttt gaa ggc gct gag agc Arg Val Leu Leu Asn Asn Cys Gln Glu Ala Phe Glu Gly Ala Glu Ser	290	295	300	912
25	cta agg gct gaa ata gca aaa ttg act ggc cct gac caa gag atg gag Leu Arg Ala Glu Ile Ala Lys Leu Thr Gly Pro Asp Gln Glu Met Glu	305	310	315	960
30	aga agg gac aaa gaa agg att gtc aaa cta aga aca ctt gga aat atc Arg Arg Asp Lys Glu Arg Ile Val Lys Leu Arg Thr Leu Gly Asn Ile	325	330	335	1008
35	cgt cta att ggt gag cta ctt aag caa aag atg gta cct gaa aag ata Arg Leu Ile Gly Glu Leu Leu Lys Gln Lys Met Val Pro Glu Lys Ile	340	345	350	1056
40	gtt cat cac att gtt cag gaa ctc ttg ggg tct gga cct gat aaa aag Val His His Ile Val Gln Glu Leu Gly Ser Gly Pro Asp Lys Lys	355	360	365	1104
45	gct tgc cct gaa gag gaa aac gtt gag gct att tgt cag ttc ttc aat Ala Cys Pro Glu Glu Glu Asn Val Glu Ala Ile Cys Gln Phe Phe Asn	370	375	380	1152
50	aca att ggt aaa cag ctt gac gag aac cca aaa tct cgt cga att aat Thr Ile Gly Lys Gln Leu Asp Glu Asn Pro Lys Ser Arg Arg Ile Asn	385	390	395	1200
55	gat acc tac ttc att cag atg aag gag tta aca aca aac ctt cag ttg Asp Thr Tyr Phe Ile Gln Met Lys Glu Leu Thr Thr Asn Leu Gln Leu	405	410	415	1248
60	gca cca cgt ctg agg ttt atg gtt cgt gat gtg gtt gat ctt cgt tca Ala Pro Arg Leu Arg Phe Met Val Arg Asp Val Val Asp Leu Arg Ser	420	425	430	1296
65	aac aat tgg gtg cct cga cgt gaa gag att aag gcc aag aca atc agt Asn Asn Trp Val Pro Arg Arg Glu Glu Ile Lys Ala Lys Thr Ile Ser	435	440	445	1344
70	gaa att cat gat gag gct ata aag aca ctt gga cta cgg cca ggg gca Glu Ile His Asp Glu Ala Ile Lys Thr Leu Gly Leu Arg Pro Gly Ala	450	455	460	1392
75	aca gga ctc acg agg aat ggc cgt aat gca cca ggt ggt cct ctt tcc Thr Gly Leu Thr Arg Asn Gly Arg Asn Ala Pro Gly Gly Pro Leu Ser	465	470	475	1440
80	cct ggt gga ttc cca atg aat cga cca gga aca gga ggg atg atg cct Pro Gly Gly Phe Pro Met Asn Arg Pro Gly Thr Gly Gly Met Met Pro	485	490	495	1488
85	ggg atg cct gga aca cct ggt atg cct gga tca aga aag atg cct gga Gly Met Pro Gly Thr Pro Gly Met Pro Gly Ser Arg Lys Met Pro Gly				1536

	500	505	510	
5	atg cct ggg tta gat aat gat aac tgg gaa gtt cca cgt tct aaa tca Met Pro Gly Leu Asp Asn Asp Asn Trp Glu Val Pro Arg Ser Lys Ser 515 520 525	1584		
10	atg cca aga ggc gac tct ctt cgt aac cag ggt ccg ttg ctt aat aag Met Pro Arg Gly Asp Ser Leu Arg Asn Gln Gly Pro Leu Leu Asn Lys 530 535 540	1632		
15	cca tca tct att aac aag cca tca tct att aac tcc agg ctt ctt cct Pro Ser Ser Ile Asn Lys Pro Ser Ser Ile Asn Ser Arg Leu Leu Pro 545 550 555 560	1680		
20	cat gga agt gga gca cta att ggt aag agt gct ctt ttg ggc agt ggt His Gly Ser Gly Ala Leu Ile Gly Lys Ser Ala Leu Leu Gly Ser Gly 565 570 575	1728		
25	ggg cca cca tct cgc cct tcc agc ctt atg gct agt ccc act cat aca Gly Pro Pro Ser Arg Pro Ser Ser Leu Met Ala Ser Pro Thr His Thr 580 585 590	1776		
30	cca gct caa act gca cca tca cca aaa cct gta agt gca gct cca gct Pro Ala Gln Thr Ala Pro Ser Pro Lys Pro Val Ser Ala Ala Pro Ala 595 600 605	1824		
35	gtt gtg cct gtc aca gac aaa gca gcc ggt tct tcc cat gag atg cca Val Val Pro Val Thr Asp Lys Ala Ala Gly Ser Ser His Glu Met Pro 610 615 620	1872		
40	gct gca gtt cag aag aag acg gta tcc ctt ctt gaa gag tat ttt ggc Ala Ala Val Gln Lys Lys Thr Val Ser Leu Leu Glu Glu Tyr Phe Gly 625 630 635 640	1920		
45	ata cgt att ctg gat gaa gca caa caa tgt atc gag gag ctt cag tgt Ile Arg Ile Leu Asp Glu Ala Gln Gln Cys Ile Glu Glu Leu Gln Cys 645 650 655	1968		
50	cct gag tac tac tct gag att gtg aaa gaa gct atc aat ctt gct ctg Pro Glu Tyr Tyr Ser Glu Ile Val Lys Glu Ala Ile Asn Leu Ala Leu 660 665 670	2016		
55	gat aag ggt ccc aac ttc att gat ccc ctt gtt agg ctg ctg gag cat Asp Lys Gly Pro Asn Phe Ile Asp Pro Leu Val Arg Leu Leu Glu His 675 680 685	2064		
60	ctg cac acc aag aaa att ttc aag act gag gac ctg aaa act gga tgc Leu His Thr Lys Lys Ile Phe Lys Thr Glu Asp Leu Lys Thr Gly Cys 690 695 700	2112		
65	tta ctg tat gca gcc ctg ctg gaa gat att ggt att gac ctt cct cta Leu Leu Tyr Ala Ala Leu Leu Glu Asp Ile Gly Ile Asp Leu Pro Leu 705 710 715 720	2160		
70	gct cca gcc ttg ttt ggt gaa gtt gtt gca cga ctg agt ttg tcg tgt Ala Pro Ala Leu Phe Gly Glu Val Val Ala Arg Leu Ser Leu Ser Cys 725 730 735	2208		
75	agc ttg agc ttt gaa gtt gtt gag gag att cta aaa gca gtg gag gat Ser Leu Ser Phe Glu Val Val Glu Glu Ile Leu Lys Ala Val Glu Asp 740 745 750	2256		
80	aca tac ttc cgc aaa gga att ttt gat gct gtc atg aaa acc atg ggt Thr Tyr Phe Arg Lys Gly Ile Phe Asp Ala Val Met Lys Thr Met Gly 755 760 765	2304		
85	gga aac tct tca ggt cag gct atc ttg agc tcg cat gct gtg gta atc Gly Asn Ser Ser Gly Gln Ala Ile Leu Ser Ser His Ala Val Val Ile 770 775 780	2352		

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 25 35 40 45

 Ser Lys Ile Gly Asp Pro Asn Phe Glu Val Arg Glu Arg Val Arg Tyr
 50 55 60
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 Thr Arg Asp Gln Leu Leu Glu Leu Arg Glu Ile Val Asp Ile Pro Glu
 65 70 75 80
 35 Ala Ile Leu Ile Lys Gln Glu Ile Asp Ile Glu Leu His Gly Glu Asp
 85 90 95
 40 Gln Ile Trp Gly Arg Pro Glu Ser Asp Val Gln Val Gln Thr Gln Thr
 100 105 110
 45 Gln Ala Gln Pro His Asn Arg Tyr Gly Glu Thr Asp Asn Arg Asp Trp
 115 120 125
 50 Arg Ala Arg Thr Val Gln Pro Pro Ala Ala Asn Glu Glu Lys Ser Trp
 130 135 140
 55 Asp Asn Ile Arg Glu Ala Lys Ala Ala His Ala Ser Ser Gly Arg Gln
 145 150 155 160
 60 Gln Glu Gln Val Asn Arg Gln Asp Gln Leu Asn His Gln Phe Ala Ser
 165 170 175
 65 Lys Ala Gln Val Gly Pro Thr Pro Ala Leu Ile Lys Ala Glu Val Pro
 180 185 190
 Trp Ser Ala Arg Arg Gly Asn Leu Ser Glu Lys Asp Arg Val Leu Lys
 195 200 205
 70 Thr Val Lys Gly Ile Leu Asn Lys Leu Thr Pro Glu Lys Phe Asp Leu
 210 215 220

5 Leu Lys Gly Gln Leu Met Glu Ser Gly Ile Thr Thr Ala Asp Ile Leu
 225 230 235 240
 Lys Asp Val Ile Ser Leu Ile Phe Glu Lys Ala Val Phe Glu Pro Thr
 245 250 255
 10 Phe Cys Pro Met Tyr Ala Gln Leu Cys Ser Asp Leu Asn Glu Lys Leu
 260 265 270
 15 Pro Ser Phe Pro Ser Glu Glu Pro Gly Gly Lys Glu Ile Thr Phe Lys
 275 280 285
 20 Arg Val Leu Leu Asn Asn Cys Gln Glu Ala Phe Glu Gly Ala Glu Ser
 290 295 300
 25 Leu Arg Ala Glu Ile Ala Lys Leu Thr Gly Pro Asp Gln Glu Met Glu
 305 310 315 320
 Arg Arg Asp Lys Glu Arg Ile Val Lys Leu Arg Thr Leu Gly Asn Ile
 325 330 335
 30 Arg Leu Ile Gly Glu Leu Leu Lys Gln Lys Met Val Pro Glu Lys Ile
 340 345 350
 35 Val His His Ile Val Gln Glu Leu Leu Gly Ser Gly Pro Asp Lys Lys
 355 360 365
 40 Ala Cys Pro Glu Glu Glu Asn Val Glu Ala Ile Cys Gln Phe Phe Asn
 370 375 380
 45 Thr Ile Gly Lys Gln Leu Asp Glu Asn Pro Lys Ser Arg Arg Ile Asn
 385 390 395 400
 Asp Thr Tyr Phe Ile Gln Met Lys Glu Leu Thr Thr Asn Leu Gln Leu
 405 410 415
 50 Ala Pro Arg Leu Arg Phe Met Val Arg Asp Val Val Asp Leu Arg Ser
 420 425 430
 55 Asn Asn Trp Val Pro Arg Arg Glu Glu Ile Lys Ala Lys Thr Ile Ser
 435 440 445
 60 Glu Ile His Asp Glu Ala Ile Lys Thr Leu Gly Leu Arg Pro Gly Ala
 450 455 460
 65 Thr Gly Leu Thr Arg Asn Gly Arg Asn Ala Pro Gly Gly Pro Leu Ser
 465 470 475 480
 Pro Gly Gly Phe Pro Met Asn Arg Pro Gly Thr Gly Gly Met Met Pro
 485 490 495

5 Gly Met Pro Gly Thr Pro Gly Met Pro Gly Ser Arg Lys Met Pro Gly
 500 505 510
 Met Pro Gly Leu Asp Asn Asp Asn Trp Glu Val Pro Arg Ser Lys Ser
 515 520 525
 10 Met Pro Arg Gly Asp Ser Leu Arg Asn Gln Gly Pro Leu Leu Asn Lys
 530 535 540
 15 Pro Ser Ser Ile Asn Lys Pro Ser Ser Ile Asn Ser Arg Leu Leu Pro
 545 550 555 560
 20 His Gly Ser Gly Ala Leu Ile Gly Lys Ser Ala Leu Leu Gly Ser Gly
 565 570 575
 Gly Pro Pro Ser Arg Pro Ser Ser Leu Met Ala Ser Pro Thr His Thr
 580 585 590
 25 Pro Ala Gln Thr Ala Pro Ser Pro Lys Pro Val Ser Ala Ala Pro Ala
 595 600 605
 30 Val Val Pro Val Thr Asp Lys Ala Ala Gly Ser Ser His Glu Met Pro
 610 615 620
 35 Ala Ala Val Gln Lys Lys Thr Val Ser Leu Leu Glu Glu Tyr Phe Gly
 625 630 635 640
 40 Ile Arg Ile Leu Asp Glu Ala Gln Gln Cys Ile Glu Glu Leu Gln Cys
 645 650 655
 Pro Glu Tyr Tyr Ser Glu Ile Val Lys Glu Ala Ile Asn Leu Ala Leu
 660 665 670
 45 Asp Lys Gly Pro Asn Phe Ile Asp Pro Leu Val Arg Leu Leu Glu His
 675 680 685
 50 Leu His Thr Lys Lys Ile Phe Lys Thr Glu Asp Leu Lys Thr Gly Cys
 690 695 700
 55 Leu Leu Tyr Ala Ala Leu Leu Glu Asp Ile Gly Ile Asp Leu Pro Leu
 705 710 715 720
 60 Ala Pro Ala Leu Phe Gly Glu Val Val Ala Arg Leu Ser Leu Ser Cys
 725 730 735
 Ser Leu Ser Phe Glu Val Val Glu Glu Ile Leu Lys Ala Val Glu Asp
 740 745 750
 65 Thr Tyr Phe Arg Lys Gly Ile Phe Asp Ala Val Met Lys Thr Met Gly
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 tcc tcc ata tcc cac tcg cca atc tcg att ccc tcc tcc gct cta cct 96
 Ser Ser Ile Ser His Ser Pro Ile Ser Ile Pro Ser Ser Ala Leu Pro
 20 25 30
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 cgc cgg agt tca ccc tgt gtg gga ctg gga gcg gcg gcg gcg tcg gag 144
 Arg Arg Ser Ser Pro Cys Val Gly Leu Gly Ala Ala Ala Ser Glu
 35 40 45
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 gca atg gac gct tcg tcg gtg gcg ctc tac ggc cag ctc aag gct gct 192
 Ala Met Asp Ala Ser Ser Val Ala Leu Tyr Gly Gln Leu Lys Ala Ala
 50 55 60
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 caa cca ttc ttc ttg tta gct ggg cct aat gtg att gaa tca gag gag 240
 Gln Pro Phe Phe Leu Leu Ala Gly Pro Asn Val Ile Glu Ser Glu Glu
 65 70 75 80
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 cat gtc ctg aag atg gca aaa cac atc aaa ggc atc aca acc aag ctt 288
 His Val Leu Lys Met Ala Lys His Ile Lys Gly Ile Thr Thr Lys Leu
 85 90 95
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 ggt ctg cca ctt gtg ttc aag tcc agc ttt gat aaa gca aat cgt aca 336
 Gly Leu Pro Leu Val Phe Lys Ser Ser Phe Asp Lys Ala Asn Arg Thr
 100 105 110
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 tca tca aaa tcc ttc cgt ggt cct ggt ctg gag gaa ggc ctg aag ata 384
 Ser Ser Lys Ser Phe Arg Gly Pro Gly Leu Glu Glu Gly Leu Lys Ile
 115 120 125
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 ctt gaa aaa gtg aaa gca aca tat gac att cca gtg gtc act gat gtg 432
 Leu Glu Lys Val Lys Ala Thr Tyr Asp Ile Pro Val Val Thr Asp Val
 130 135 140
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 cat gaa agc cac cag tgt gaa gcc gcc gga aga gtg gcc gac atc ata 480
 His Glu Ser His Gln Cys Glu Ala Ala Gly Arg Val Ala Asp Ile Ile
 145 150 155 160
 65
 caa att cca gct ttc ttc tgt cgc cag act gat ctt cta gtg gct gct 528
 Gln Ile Pro Ala Phe Phe Cys Arg Gln Thr Asp Leu Leu Val Ala Ala
 165 170 175
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 gcc aag act gga aaa att atc aac atc aag aaa gga caa ttc tgt gct 576
 Ala Lys Thr Gly Lys Ile Ile Asn Ile Lys Lys Gly Gln Phe Cys Ala
 180 185 190

5 cct tct gtt atg gcc aac tct gca gag aaa atc aga ctt gct gga aat 624
 Pro Ser Val Met Ala Asn Ser Ala Glu Lys Ile Arg Leu Ala Gly Asn
 195 200 205

10 caa aat gtt atg gtc tgt gag cgt ggc acc atg ttt ggc tac aat gat 672
 Gln Asn Val Met Val Cys Glu Arg Gly Thr Met Phe Gly Tyr Asn Asp
 210 215 220

15 cta att gtt gat cca agg aat ttt gag tgg ctg aga gaa gct aat tgt 720
 Leu Ile Val Asp Pro Arg Asn Phe Glu Trp Leu Arg Glu Ala Asn Cys
 225 230 235 240

20 cca gtt gta gct gat gta acg cat gct cta caa cag cct gct gga aaa 768
 Pro Val Val Ala Asp Val Thr His Ala Leu Gln Gln Pro Ala Gly Lys
 245 250 255

25 aag ctt gat ggt gga ggt gtt gca agt ggg ggc tta cga gaa cta ata 816
 Lys Leu Asp Gly Gly Gly Val Ala Ser Gly Gly Leu Arg Glu Leu Ile
 260 265 270

30 cca tgc atc gca agg act tct gtt gct gtc gga gtt gat ggt att ttc 864
 Pro Cys Ile Ala Arg Thr Ser Val Ala Val Gly Val Asp Gly Ile Phe
 275 280 285

35 atg gag gta cat gat gat ccc ttg aac gca cct tgt gat ggc cca act 912
 Met Glu Val His Asp Asp Pro Leu Asn Ala Pro Cys Asp Gly Pro Thr
 290 295 300

40 caa tgg cca ctg cgc aat ttg gag gag cta tta gag gag ctg att gca 960
 Gln Trp Pro Leu Arg Asn Leu Glu Glu Leu Leu Glu Glu Leu Ile Ala
 305 310 315 320

45 att gct cga gtc acc aag gga aag aag cca ctc aag atc gat ctc acc 1008
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50 ccc ttc aaa gaa t 1021
 Pro Phe Lys Glu
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70 Arg Arg Ser Ser Pro Cys Val Gly Leu Gly Ala Ala Ala Ala Ser Glu
 35 40 45

75 Ala Met Asp Ala Ser Ser Val Ala Leu Tyr Gly Gln Leu Lys Ala Ala
 50 55 60

80 Gln Pro Phe Phe Leu Leu Ala Gly Pro Asn Val Ile Glu Ser Glu Glu
 65 70 75 80

His Val Leu Lys Met Ala Lys His Ile Lys Gly Ile Thr Thr Lys Leu
 85 90 95
 5 Gly Leu Pro Leu Val Phe Lys Ser Ser Phe Asp Lys Ala Asn Arg Thr
 100 105 110
 10 Ser Ser Lys Ser Phe Arg Gly Pro Gly Leu Glu Glu Gly Leu Lys Ile
 115 120 125
 15 Leu Glu Lys Val Lys Ala Thr Tyr Asp Ile Pro Val Val Thr Asp Val
 130 135 140
 20 His Glu Ser His Gln Cys Glu Ala Ala Gly Arg Val Ala Asp Ile Ile
 145 150 155 160
 Gln Ile Pro Ala Phe Phe Cys Arg Gln Thr Asp Leu Leu Val Ala Ala
 165 170 175
 25 Ala Lys Thr Gly Lys Ile Ile Asn Ile Lys Lys Gly Gln Phe Cys Ala
 180 185 190
 30 Pro Ser Val Met Ala Asn Ser Ala Glu Lys Ile Arg Leu Ala Gly Asn
 195 200 205
 35 Gln Asn Val Met Val Cys Glu Arg Gly Thr Met Phe Gly Tyr Asn Asp
 210 215 220
 40 Leu Ile Val Asp Pro Arg Asn Phe Glu Trp Leu Arg Glu Ala Asn Cys
 225 230 235 240
 Pro Val Val Ala Asp Val Thr His Ala Leu Gln Gln Pro Ala Gly Lys
 245 250 255
 45 Lys Leu Asp Gly Gly Gly Val Ala Ser Gly Gly Leu Arg Glu Leu Ile
 260 265 270
 50 Pro Cys Ile Ala Arg Thr Ser Val Ala Val Gly Val Asp Gly Ile Phe
 275 280 285
 55 Met Glu Val His Asp Asp Pro Leu Asn Ala Pro Cys Asp Gly Pro Thr
 290 295 300
 60 Gln Trp Pro Leu Arg Asn Leu Glu Glu Leu Leu Glu Glu Leu Ile Ala
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 Glu Arg Tyr Glu Glu Met Val Glu Tyr Met Glu Lys Val Ala Lys Thr
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gta gat gtg gaa gag ctc act gtt gag gag cgc aac ctc ttg tct gtt 144
 Val Asp Val Glu Glu Leu Thr Val Glu Glu Arg Asn Leu Leu Ser Val
 35 40 45

gct tac aag aat gtg att ggt gcc cgc cgt gcc tcc tgg cgt att gtc 192
 Ala Tyr Lys Asn Val Ile Gly Ala Arg Arg Ala Ser Trp Arg Ile Val
 50 55 60

tca tcc att gaa cag aag gag gag ggt cgt gcc aat gag gaa cat gtt 240
 Ser Ser Ile Glu Gln Lys Glu Glu Gly Arg Gly Asn Glu Glu His Val
 65 70 75 80

act ctg atc aag gag tac cgt gcc aag att gaa gct gag ctg agc aag 288
 Thr Leu Ile Lys Glu Tyr Arg Gly Lys Ile Glu Ala Glu Leu Ser Lys
 85 90 95

att tgc gat ggt atc ctg aag ttg ctt gac tca cac ctt gtg ccc tca 336
 Ile Cys Asp Gly Ile Leu Lys Leu Leu Asp Ser His Leu Val Pro Ser
 100 105 110

tct act gct gca gaa tct aag gtg ttt tac ctc aag atg aag ggt gat 384
 Ser Thr Ala Ala Glu Ser Lys Val Phe Tyr Leu Lys Met Lys Gly Asp
 115 120 125

tac cac agg tac ctt gcg gaa ttt aag act ggt gcc gag aga aag gaa 432
 Tyr His Arg Tyr Leu Ala Glu Phe Lys Thr Gly Ala Glu Arg Lys Glu
 130 135 140

gct gct gag agc aca atg gtg gct tac aag gct gct cag gat att gct 480
 Ala Ala Glu Ser Thr Met Val Ala Tyr Lys Ala Ala Gln Asp Ile Ala
 145 150 155 160

ctg gcg gat ctt gct ccc acc cat ccc ata agg ctt gga ctg gca ctt 528
 Leu Ala Asp Leu Ala Pro Thr His Pro Ile Arg Leu Gly Leu Ala Leu
 165 170 175

aac ttc tct gtg ttc tac tac gag att cta aac tct cca gac aag gct 576
 Asn Phe Ser Val Phe Tyr Tyr Glu Ile Leu Asn Ser Pro Asp Lys Ala
 180 185 190

tgc aac ctt gct aag cag gcg ttt gac gaa gcc atc tcc gag ttg gat 624
 Cys Asn Leu Ala Lys Gln Ala Phe Asp Glu Ala Ile Ser Glu Leu Asp
 195 200 205

acc ctc ggg gag gag tct tac aag gac agc act ttg atc atg cag ctc 672
 Thr Leu Gly Glu Glu Ser Tyr Lys Asp Ser Thr Leu Ile Met Gln Leu
 210 215 220

ctg agg gac aac ttg acc ctc tgg acc tct gac ctc acg gag gac ggt 720
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 225 230 235 240

5 ggt gat gag gtg aaa gaa gcc tcc aag ggc gac gcc tgc gag ggc cag 768
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taa 771

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Val Asp Val Glu Glu Leu Thr Val Glu Glu Arg Asn Leu Leu Ser Val
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30 Ala Tyr Lys Asn Val Ile Gly Ala Arg Arg Ala Ser Trp Arg Ile Val
 50 55 60

35 Ser Ser Ile Glu Gln Lys Glu Glu Gly Arg Gly Asn Glu Glu His Val
 65 70 75 80

40 Thr Leu Ile Lys Glu Tyr Arg Gly Lys Ile Glu Ala Glu Leu Ser Lys
 85 90 95

45 Ile Cys Asp Gly Ile Leu Lys Leu Leu Asp Ser His Leu Val Pro Ser
 100 105 110

Ser Thr Ala Ala Glu Ser Lys Val Phe Tyr Leu Lys Met Lys Gly Asp
 115 120 125

50 Tyr His Arg Tyr Leu Ala Glu Phe Lys Thr Gly Ala Glu Arg Lys Glu
 130 135 140

55 Ala Ala Glu Ser Thr Met Val Ala Tyr Lys Ala Ala Gln Asp Ile Ala
 145 150 155 160

60 Leu Ala Asp Leu Ala Pro Thr His Pro Ile Arg Leu Gly Leu Ala Leu
 165 170 175

65 Asn Phe Ser Val Phe Tyr Tyr Glu Ile Leu Asn Ser Pro Asp Lys Ala
 180 185 190

Cys Asn Leu Ala Lys Gln Ala Phe Asp Glu Ala Ile Ser Glu Leu Asp
 195 200 205

Thr Leu Gly Glu Glu Ser Tyr Lys Asp Ser Thr Leu Ile Met Gln Leu
 210 215 220
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 Val Ala Ala Ser Ala Ala Phe Ser Ser Arg Lys Gln Leu Arg Leu Pro
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 gcc gcg gcg cgc ggg ggg atg cgg gtg cgg gtg cgg gcg cgg ggg cgg 144
 Ala Ala Ala Arg Gly Gly Met Arg Val Arg Val Arg Ala Arg Gly Arg
 35 40 45
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 Arg Glu Ala Val Val Val Ala Ser Ala Ser Ser Ser Ser Val Ala Ala
 50 55 60
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 ccg gcg gcg aag gcg gag gag atc gtg ctc cag ccc atc agg gag atc 240
 Pro Ala Ala Lys Ala Glu Glu Ile Val Leu Gln Pro Ile Arg Glu Ile
 65 70 75 80
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 tcc ggg gcg gtt cag ctg cca ggg tcc aag tcg ctc tcc aac agg atc 288
 Ser Gly Ala Val Gln Leu Pro Gly Ser Lys Ser Leu Ser Asn Arg Ile
 85 90 95
 55
 ctc ctc ctc tcc gcc ctc tcc gag ggc aca aca gtg gtg gac aac ttg 336
 Leu Leu Leu Ser Ala Leu Ser Glu Gly Thr Thr Val Val Asp Asn Leu
 100 105 110
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 ctg aac agt gag gat gtt cac tac atg ctt gag gcc ctg aaa gcc ctc 384
 Leu Asn Ser Glu Asp Val His Tyr Met Leu Glu Ala Leu Lys Ala Leu
 115 120 125
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 ggg ctc tct gtg gaa gca gat aaa gtt gca aaa aga gct gta gtc gtt 432
 Gly Leu Ser Val Glu Ala Asp Lys Val Ala Lys Arg Ala Val Val Val
 130 135 140
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 ggc tgt ggt ggc aag ttt cct gtt gag aag gat gcg aaa gag gaa gtg 480
 Gly Cys Gly Gly Lys Phe Pro Val Glu Lys Asp Ala Lys Glu Glu Val
 145 150 155 160
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 caa ctc ttc ttg ggg aac gct gga act gca atg cga cca ttg aca gca 528
 Gln Leu Phe Leu Asn Ala Gly Thr Ala Met Arg Pro Leu Thr Ala
 165 170 175

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	Ala	Val	Thr	Ala	Ala	Gly	Gly	Asn	Ala	Thr	Tyr	Val	Leu	Asp	Gly	Val	
				180					185					190			
10	cca	cga	atg	agg	gag	aga	ccg	att	ggt	gac	ttg	gtt	gtc	ggg	ttg	aaa	624
	Pro	Arg	Met	Arg	Glu	Arg	Pro	Ile	Gly	Asp	Leu	Val	Val	Gly	Leu	Lys	
			195					200					205				
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	Pro	Leu	Ala	Leu	Gly	Asp	Val	Glu	Ile	Glu	Ile	Ile	Asp	Lys	Leu	Ile	
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	Ser	Ile	Pro	Tyr	Val	Glu	Met	Thr	Leu	Arg	Leu	Met	Glu	Arg	Phe	Gly	
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	Val	Thr	Val	Gln	Gly	Cys	Gly	Thr	Thr	Ser	Leu	Gln	Gly	Asp	Val	Lys	
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	Phe	Ala	Glu	Val	Leu	Glu	Met	Met	Gly	Ala	Lys	Val	Thr	Trp	Thr	Asp	
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	Met	Thr	Leu	Ala	Val	Val	Ala	Leu	Phe	Ala	Asp	Gly	Pro	Thr	Ala	Ile	
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	Arg	Asp	Val	Ala	Ser	Trp	Arg	Val	Lys	Glu	Thr	Glu	Arg	Met	Val	Ala	
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192

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 Tyr Gln Ser Thr Val Asp Gly Lys Lys Ile Val Asp Ile Leu Thr Glu
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	Arg Thr Val Val Ser Ile Pro Asn Gly Pro Ser Glu Leu Ala Val Lys	
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	Glu Ala Ala Trp Gly Leu Ala Arg Tyr Ala Ala Ile Ser Gln Asp Asn	
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	Gly Leu Val Pro Ile Val Glu Pro Glu Ile Leu Leu Asp Gly Glu His	
	210 215 220	
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	Pro Glu Gln Val Ser Asp Tyr Thr Leu Lys Leu Leu His Arg Arg Ile	
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	Val Glu Ala Thr Gln Asn Leu Asn Ala Met Asn Gln Gly Pro Asn Pro	
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 195 200 205
 55 Gly Leu Val Pro Ile Val Glu Pro Glu Ile Leu Leu Asp Gly Glu His
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 Gly Ile Asp Arg Thr Phe Glu Val Ala Gln Lys Val Trp Ala Glu Thr
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 65 Lys Pro Ser Met Val Thr Pro Gly Ala Glu Cys Lys Asp Arg Ala Thr
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	Lys	Gly	Arg	Cys	Tyr	His	Ile	Glu	Pro	Val	Val	Gly	Glu	Asp	Asn	Gln	
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	Ser	Lys	Thr	Phe	Gln	Gly	Pro	Pro	His	Gly	Ile	Gln	Val	Glu	Arg	Asp	
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	Lys	Leu	Gly	Leu	Ser	Ala	Lys	Asn	Tyr	Gly	Arg	Ala	Cys	Tyr	Glu	Cys	
				180					185					190			
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	Leu	Arg	Gly	Gly	Leu	Asp	Phe	Thr	Lys	Asp	Asp	Glu	Asn	Val	Asn	Ser	
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	Gln	Pro	Phe	Met	Arg	Trp	Arg	Asp	Arg	Phe	Val	Phe	Cys	Ala	Glu	Ala	
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25	Gln	Pro 210	Phe	Met	Arg	Trp	Arg 215	Asp	Arg	Phe	Val	Phe 220	Cys	Ala	Glu	Ala						
30	Ile 225	Tyr	Lys	Ser	Gln	Ala 230	Glu	Thr	Gly	Glu	Ile 235	Lys	Gly	His	Tyr	Leu 240						
35	Asn	Ala	Thr	Ala	Gly 245	Thr	Cys	Glu	Glu	Met 250	Ile	Lys	Arg	Ala 255	Val	Phe						
40	Ala	Arg	Glu	Leu	Gly 260	Val	Pro	Ile	Val 265	Met	His	Asp	Tyr	Leu 270	Thr	Gly						
45	Gly	Phe	Thr 275	Ala	Asn	Thr	Ser	Leu 280	Ala	His	Tyr	Cys 285	Arg	Asp	Asn	Gly						
50	Leu	Leu 290	Leu	His	Ile	His	Arg 295	Ala	Met	His	Ala	Val 300	Ile	Asp	Arg	Gln						
55	Lys 305	Asn	His	Gly	Met	His 310	Phe	Arg	Val	Leu	Ala 315	Lys	Ala	Leu	Arg	Met 320						
60	Ser	Gly	Gly	Asp	His 325	Ile	His	Ala	Gly	Thr 330	Val	Val	Gly	Lys	Leu 335	Glu						
65	Gly	Glu	Arg	Glu 340	Met	Thr	Leu	Gly	Phe 345	Val	Asp	Leu	Leu	Arg 350	Asp	Asp						
70	Phe	Ile	Glu 355	Lys	Asp	Arg	Ala	Arg 360	Gly	Ile	Phe	Phe	Thr 365	Gln	Asp	Trp						
75	Val	Ser 370	Met	Pro	Gly	Val	Ile 375	Pro	Val	Ala	Ser	Gly 380	Gly	Ile	His	Val						
80	Trp	His	Met	Pro	Ala	Leu 390	Thr	Glu	Ile	Phe	Gly 395	Asp	Asp	Ser	Val	Leu 400						
85	Gln	Phe	Gly	Gly	Gly	Thr	Leu	Gly	His	Pro	Trp	Gly	Asn	Ala	Pro	Gly						

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10	Glu Gly Arg Asp Leu Ala Arg Glu Gly Asn Glu Ile Ile Arg Ser Ala 435 440 445			
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40	aac tac cat ggc aag agc tcc aac atc aac agg ttc aag gtg atg gcc Asn Tyr His Gly Lys Ser Ser Asn Ile Asn Arg Phe Lys Val Met Ala 35 40 45			144
45	aag gag ctg gac gag ggc aag cag acc gac cag gac agg tgg aag ggt Lys Glu Leu Asp Glu Gly Lys Gln Thr Asp Gln Asp Arg Trp Lys Gly 50 55 60			192
50	ctc gcc tac gac atc tcc gat gac cag cag gac atc acc agg ggg aag Leu Ala Tyr Asp Ile Ser Asp Asp Gln Gln Asp Ile Thr Arg Gly Lys 65 70 75 80			240
55	ggt ttc gtc gac tcc ctt ttc cag gct ccc acg ggt gat ggc acc cac Gly Phe Val Asp Ser Leu Phe Gln Ala Pro Thr Gly Asp Gly Thr His 85 90 95			288
60	gag gcc gtc ctc agc tcc tac gag tac ctc agc cag ggt ctc aga acg Glu Ala Val Leu Ser Ser Tyr Glu Tyr Leu Ser Gln Gly Leu Arg Thr 100 105 110			336
65	tac gac ttc gac aac acc atg gga ggc ttc tac atc gcc cct gct ttc Tyr Asp Phe Asp Asn Thr Met Gly Gly Phe Tyr Ile Ala Pro Ala Phe 115 120 125			384
65	atg gac aag ctc gtc gtc cac atc tcc aag aac ttc atg acc ctc ccc Met Asp Lys Leu Val Val His Ile Ser Lys Asn Phe Met Thr Leu Pro 130 135 140			432
	aac atc aag gtc cca ctc atc ctg ggt atc tgg gga ggc aag ggt cag Asn Ile Lys Val Pro Leu Ile Leu Gly Ile Trp Gly Gly Lys Gly Gln			480

	145				150					155				160			
5	gga Gly	aaa Lys	tcc Ser	ttc Phe	cag Gln 165	tgt Cys	gag Glu	ctc Leu	gtc Val	ttc Phe 170	gcc Ala	aag Lys	atg Met	ggg Gly 175	atc Ile	aac Asn	528
10	ccc Pro	atc Ile	atg Met	atg Met 180	agc Ser	gcc Ala	gga Gly	gag Glu	ctg Leu 185	gag Glu	agc Ser	ggc Gly	aac Asn	gcc Ala 190	gga Gly	gag Glu	576
	ccg Pro	gcg Ala	aag Lys 195	ctg Leu	atc Ile	agg Arg	cag Gln	cgg Arg 200	tac Tyr	cgt Arg	gag Glu	gcg Ala	gca Ala 205	gac Asp	atc Ile	atc Ile	624
15	aag Lys	aag Lys 210	ggg Gly	aag Lys	atg Met	tgc Cys	tgc Cys 215	ctc Leu	ttc Phe	atc Ile	aac Asn	gat Asp 220	ctg Leu	gac Asp	gcg Ala	ggt Gly	672
20	gca Ala 225	ggt Gly	cgc Arg	atg Met	gga Gly	ggc Gly 230	acc Thr	acc Thr	cag Gln	tac Tyr	acg Thr 235	gtg Val	aac Asn	aac Asn	cag Gln	atg Met 240	720
25	gtg Val	aac Asn	gcc Ala	acc Thr	ctg Leu 245	atg Met	aac Asn	atc Ile	gcc Ala	gac Asp 250	aac Asn	cca Pro	acc Thr	aac Asn	gtg Val 255	cag Gln	768
30	ctc Leu	ccc Pro	ggg Gly	atg Met 260	tac Tyr	aac Asn	aag Lys	gag Glu	gac Asp 265	aac Asn	ccc Pro	cgt Arg	gtc Val	ccc Pro 270	atc Ile	atc Ile	816
	gtc Val	acc Thr	ggc Gly 275	aac Asn	gac Asp	ttc Phe	tcc Ser	acg Thr 280	ctg Leu	tac Tyr	gcg Ala	ccg Pro	ctc Leu 285	atc Ile	cgt Arg	gac Asp	864
35	ggg Gly	cgt Arg 290	atg Met	gag Glu	aag Lys	ttc Phe	tac Tyr 295	tgg Trp	gct Ala	ccc Pro	acc Thr	cgc Arg 300	gac Asp	gac Asp	cgt Arg	gtc Val	912
40	ggc Gly 305	gtc Val	tgc Cys	aag Lys	ggt Gly	atc Ile 310	ttc Phe	cgc Arg	acc Thr	gac Asp	aac Asn 315	gtc Val	ccc Pro	gac Asp	gag Glu	gac Asp 320	960
45	atc Ile	gtc Val	aag Lys	atc Ile	gtc Val 325	gac Asp	agc Ser	ttc Phe	cca Pro	ggc Gly 330	caa Gln	tcc Ser	atc Ile	gat Asp	ttc Phe 335	ttc Phe	1008
50	ggc Gly	gct Ala	ctt Leu	cgt Arg 340	gcc Ala	cgt Arg	gtt Val	tac Tyr	gac Asp 345	gac Asp	gag Glu	gtg Val	cgc Arg 350	aag Lys	tgg Trp	gtg Val	1056
	tcg Ser	gac Asp	acg Thr 355	ggt Gly	gtg Val	gag Glu	aac Asn	att Ile 360	ggc Gly	aag Lys	agg Arg	ctg Leu	gtg Val 365	aac Asn	tcg Ser	agg Arg	1104
55	gag Glu	ggc Gly 370	cca Pro	ccg Pro	gag Glu	ttc Phe	gag Glu 375	cag Gln	ccc Pro	aag Lys	atg Met	acg Thr 380	atc Ile	gaa Glu	aag Lys	ctc Leu	1152
60	atg Met 385	gag Glu	tac Tyr	gga Gly	tac Tyr	atg Met 390	ctt Leu	gtg Val	aag Lys	gag Glu	cag Gln 395	gag Glu	aac Asn	gtc Val	aag Lys	cgt Arg 400	1200
	gtg Val	cag Gln	ctg Leu	gct Ala	gag Glu 405	cag Gln	tac Tyr	ttg Leu	agc Ser	gag Glu 410	gct Ala	gct Ala	ctt Leu	ggt Gly 415	gac Asp	gct Ala	1248
65	aac Asn	tcc Ser	gac Asp	gcc Ala	atg Met	aag Lys	act Thr	ggt Gly	tcc Ser	ttc Phe	tac Tyr	ggg Gly	caa Gln	gga Gly	gca Ala	cag Gln	1296

	420	425	430	
5	caa gca ggt aac ctg cct gtg ccg gaa ggt tgc acc gac cct gtt gcc Gln Ala Gly Asn Leu Pro Val Pro Glu Gly Cys Thr Asp Pro Val Ala 435 440 445			1344
10	aag aac ttc gac cca acg gcg agg agc gac gac ggc agc tgc ctt tac Lys Asn Phe Asp Pro Thr Ala Arg Ser Asp Asp Gly Ser Cys Leu Tyr 450 455 460			1392
15	acc ttt taa Thr Phe 465			1401
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25	Met Ala Ala Ala Phe Ser Ser Thr Val Gly Ala Pro Ala Ser Thr Pro 1 5 10 15			
30	Thr Asn Phe Leu Gly Lys Lys Leu Lys Lys Gln Val Thr Ser Ala Val 20 25 30			
35	Asn Tyr His Gly Lys Ser Ser Asn Ile Asn Arg Phe Lys Val Met Ala 35 40 45			
40	Lys Glu Leu Asp Glu Gly Lys Gln Thr Asp Gln Asp Arg Trp Lys Gly 50 55 60			
45	Leu Ala Tyr Asp Ile Ser Asp Asp Gln Gln Asp Ile Thr Arg Gly Lys 65 70 75 80			
50	Gly Phe Val Asp Ser Leu Phe Gln Ala Pro Thr Gly Asp Gly Thr His 85 90 95			
55	Glu Ala Val Leu Ser Ser Tyr Glu Tyr Leu Ser Gln Gly Leu Arg Thr 100 105 110			
60	Tyr Asp Phe Asp Asn Thr Met Gly Gly Phe Tyr Ile Ala Pro Ala Phe 115 120 125			
65	Met Asp Lys Leu Val Val His Ile Ser Lys Asn Phe Met Thr Leu Pro 130 135 140			
	Asn Ile Lys Val Pro Leu Ile Leu Gly Ile Trp Gly Gly Lys Gly Gln 145 150 155 160			
	Gly Lys Ser Phe Gln Cys Glu Leu Val Phe Ala Lys Met Gly Ile Asn 165 170 175			
	Pro Ile Met Met Ser Ala Gly Glu Leu Glu Ser Gly Asn Ala Gly Glu 180 185 190			

204

Thr Phe
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 ctc ggc ggc cgg gcc tcc tcc gcc gcg ctg cca tcg cgc ccg tct tcg 96
 Leu Gly Gly Arg Ala Ser Ser Ala Ala Leu Pro Ser Arg Pro Ser Ser
 20 20 25 30
 25 cac gtc gcc agg gcg ttc ggc gtc gac acc ggt gcc gcc ggc agg atc 144
 His Val Ala Arg Ala Phe Gly Val Asp Thr Gly Ala Ala Gly Arg Ile
 35 35 40 45
 30 acg tgc tcc ctg cag tcc gac atc cgg gag gtc gcc aac aag tgc gcc 192
 Thr Cys Ser Leu Gln Ser Asp Ile Arg Glu Val Ala Asn Lys Cys Ala
 50 55 60
 gat gcc gcc aag ctc gcc ggc ttc gcc ctc gcc acc tca gct ctg ctc 240
 Asp Ala Ala Lys Leu Ala Gly Phe Ala Leu Ala Thr Ser Ala Leu Leu
 65 70 75 80
 gtc tcg ggc gcc agc gcg gag ggc gtg ccg agg agg ctt acc ttc gac 288
 Val Ser Gly Ala Ser Ala Glu Gly Val Pro Arg Arg Leu Thr Phe Asp
 85 90 95
 gag att cag agt aag acg tac atg gag gtg aag gga acc ggc acg gcg 336
 Glu Ile Gln Ser Lys Thr Tyr Met Glu Val Lys Gly Thr Gly Thr Ala
 100 105 110
 45 aac cag tgc ccg acg gtg gag ggc gcc gtc gac tcc ttc gcc ttc aag 384
 Asn Gln Cys Pro Thr Val Glu Gly Val Asp Ser Phe Ala Phe Lys
 115 120 125
 gcc ggc aag tac aac atg aag aag ttc tgc ctg gag ccg acg tcc ttc 432
 Ala Gly Lys Tyr Asn Met Lys Lys Phe Cys Leu Glu Pro Thr Ser Phe
 130 135 140
 acc gtt aag gcg gag ggc gtg gcc aag aac gcg cca ccc gag ttc cag 480
 Thr Val Lys Ala Glu Gly Val Ala Lys Asn Ala Pro Pro Glu Phe Gln
 145 150 155 160
 aag acc aag ctc atg acc cgc ctg acc tac acc ctc gac gag atc gag 528
 Lys Thr Lys Leu Met Thr Arg Leu Thr Tyr Thr Leu Asp Glu Ile Glu
 165 170 175
 ggc ccg ctc gag gtc agc tcc gac gga acc atc aag ttc gag gag aag 576
 Gly Pro Leu Glu Val Ser Ser Asp Gly Thr Ile Lys Phe Glu Glu Lys
 180 185 190
 65 gac gga atc gac tac gcc gcc gtc acc gtg cag ctg ccg gga ggc gag 624
 Asp Gly Ile Asp Tyr Ala Ala Val Thr Val Gln Leu Pro Gly Gly Glu
 195 200 205

	cgc gtc ccg ttc ctc ttc acc atc aag aat ctg gtc gcc acc ggc aag	672
	Arg Val Pro Phe Leu Phe Thr Ile Lys Asn Leu Val Ala Thr Gly Lys	
	210 215 220	
5	ccg gag agc ttc ggc ggg ccc ttc ctc gtg ccc agc tac cgt ggt tcg	720
	Pro Glu Ser Phe Gly Gly Pro Phe Leu Val Pro Ser Tyr Arg Gly Ser	
	225 230 235 240	
10	tcc ttc ctc gac cca aag ggc cgc ggt ggc tct acc ggc tac gac aac	768
	Ser Phe Leu Asp Pro Lys Gly Arg Gly Ser Thr Gly Tyr Asp Asn	
	245 250 255	
15	gct gtg gcg ctc ccc gcc gga ggc aga gga gac gag gag gag ctc gct	816
	Ala Val Ala Leu Pro Ala Gly Gly Arg Gly Asp Glu Glu Glu Leu Ala	
	260 265 270	
20	aag gag aac gtc aag aac gcc tcg tcg tcg acg ggc aac atc acg ttg	864
	Lys Glu Asn Val Lys Asn Ala Ser Ser Ser Thr Gly Asn Ile Thr Leu	
	275 280 285	
25	agc gtc acc aag agc aag cca gag acc ggc gag gtg att ggc gtc ttc	912
	Ser Val Thr Lys Ser Lys Pro Glu Thr Gly Glu Val Ile Gly Val Phe	
	290 295 300	
30	gag agc gtg cag ccg tcg gac aca gac ctc ggc gcc aag gtg ccc aag	960
	Glu Ser Val Gln Pro Ser Asp Thr Asp Leu Gly Ala Lys Val Pro Lys	
	305 310 315 320	
35	gat gtc aag atc caa ggg gtg tgg tac gcg cag ctc gag tag	1002
	Asp Val Lys Ile Gln Gly Val Trp Tyr Ala Gln Leu Glu	
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50	His Val Ala Arg Ala Phe Gly Val Asp Thr Gly Ala Ala Gly Arg Ile	
	35 40 45	
55	Thr Cys Ser Leu Gln Ser Asp Ile Arg Glu Val Ala Asn Lys Cys Ala	
	50 55 60	
60	Asp Ala Ala Lys Leu Ala Gly Phe Ala Leu Ala Thr Ser Ala Leu Leu	
	65 70 75 80	
65	Val Ser Gly Ala Ser Ala Glu Gly Val Pro Arg Arg Leu Thr Phe Asp	
	85 90 95	
65	Glu Ile Gln Ser Lys Thr Tyr Met Glu Val Lys Gly Thr Gly Thr Ala	
	100 105 110	

Asn Gln Cys Pro Thr Val Glu Gly Gly Val Asp Ser Phe Ala Phe Lys
 115 120 125
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 Ala Gly Lys Tyr Asn Met Lys Lys Phe Cys Leu Glu Pro Thr Ser Phe
 130 135 140
 10 Thr Val Lys Ala Glu Gly Val Ala Lys Asn Ala Pro Pro Glu Phe Gln
 145 150 155 160
 15 Lys Thr Lys Leu Met Thr Arg Leu Thr Tyr Thr Leu Asp Glu Ile Glu
 165 170 175
 20 Gly Pro Leu Glu Val Ser Ser Asp Gly Thr Ile Lys Phe Glu Glu Lys
 180 185 190
 Asp Gly Ile Asp Tyr Ala Ala Val Thr Val Gln Leu Pro Gly Gly Glu
 195 200 205
 25 Arg Val Pro Phe Leu Phe Thr Ile Lys Asn Leu Val Ala Thr Gly Lys
 210 215 220
 30 Pro Glu Ser Phe Gly Gly Pro Phe Leu Val Pro Ser Tyr Arg Gly Ser
 225 230 235 240
 35 Ser Phe Leu Asp Pro Lys Gly Arg Gly Gly Ser Thr Gly Tyr Asp Asn
 245 250 255
 40 Ala Val Ala Leu Pro Ala Gly Gly Arg Gly Asp Glu Glu Glu Leu Ala
 260 265 270
 Lys Glu Asn Val Lys Asn Ala Ser Ser Ser Thr Gly Asn Ile Thr Leu
 275 280 285
 45 Ser Val Thr Lys Ser Lys Pro Glu Thr Gly Glu Val Ile Gly Val Phe
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 50 Glu Ser Val Gln Pro Ser Asp Thr Asp Leu Gly Ala Lys Val Pro Lys
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5	tcc atc tcc cgc cgg gga tcc tcc ttc gcc atc gtc tgc agc ggt ggg	96
	Ser Ile Ser Arg Arg Gly Ser Ser Phe Ala Ile Val Cys Ser Gly Gly	
	20 25 30	
10	aag aag atc aag acc gac aag ccc tac ggg att gga ggt ggc atg tca	144
	Lys Lys Ile Lys Thr Asp Lys Pro Tyr Gly Ile Gly Gly Gly Met Ser	
	35 40 45	
15	gtc gat att gat gca tct ggc agg aaa agc acg ggg aag ggt gtg tac	192
	Val Asp Ile Asp Ala Ser Gly Arg Lys Ser Thr Gly Lys Gly Val Tyr	
	50 55 60	
20	caa ttc gtt gac aag tac ggc gca aac gtc gac ggc tac agc cca atc	240
	Gln Phe Val Asp Lys Tyr Gly Ala Asn Val Asp Gly Tyr Ser Pro Ile	
	65 70 75 80	
25	tac tcg ccg gag gaa tgg tct ccc acc ggt gac acc tac gtt ggt gga	288
	Tyr Ser Pro Glu Glu Trp Ser Pro Thr Gly Asp Thr Tyr Val Gly Gly	
	85 90 95	
30	acc acc ggg ctt ctg atc tgg gcc gtg acc ctc gcc ggg ctc ctc ggc	336
	Thr Thr Gly Leu Leu Ile Trp Ala Val Thr Leu Ala Gly Leu Leu Gly	
	100 105 110	
35	ggc ggc gcc ctc ctc gtc tac aac acc agc gcc ctc gcc ggc taa	381
	Gly Gly Ala Leu Leu Val Tyr Asn Thr Ser Ala Leu Ala Gly	
	115 120 125	
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	20 25 30	
55	Lys Lys Ile Lys Thr Asp Lys Pro Tyr Gly Ile Gly Gly Gly Met Ser	
	35 40 45	
60	Val Asp Ile Asp Ala Ser Gly Arg Lys Ser Thr Gly Lys Gly Val Tyr	
	50 55 60	
65	Gln Phe Val Asp Lys Tyr Gly Ala Asn Val Asp Gly Tyr Ser Pro Ile	
	65 70 75 80	
65	Tyr Ser Pro Glu Glu Trp Ser Pro Thr Gly Asp Thr Tyr Val Gly Gly	
	85 90 95	
65	Thr Thr Gly Leu Leu Ile Trp Ala Val Thr Leu Ala Gly Leu Leu Gly	
	100 105 110	

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20 aag gct tat gct gcc aca cca aca aat ctc aag atc att gac ctc tat 96
 Lys Ala Tyr Ala Ala Thr Pro Thr Asn Leu Lys Ile Ile Asp Leu Tyr
 20 25 30

25 gtg gtc ttt gca gtc gcc act gcc ctt att cag gtt gtt tac atg gga 144
 Val Val Phe Ala Val Ala Thr Ala Leu Ile Gln Val Val Tyr Met Gly
 35 40 45

30 ata gtg ggg tca ttt cct ttc aac tct ttc ctt tct ggc gtc ctc tca 192
 Ile Val Gly Ser Phe Pro Phe Asn Ser Phe Leu Ser Gly Val Leu Ser
 50 55 60

35 tgc ata gga act gca gtc ctc gct gtt tgc ctt cgt att caa gtt aac 240
 Cys Ile Gly Thr Ala Val Leu Ala Val Cys Leu Arg Ile Gln Val Asn
 65 70 75 80

40 aaa gat aac aag gaa ttc aag gat ctt cct cct gaa agg gcg ttt gca 288
 Lys Asp Asn Lys Glu Phe Lys Asp Leu Pro Pro Glu Arg Ala Phe Ala
 85 90 95

45 gat ttc gtt ctg tgc aat ctg gtg ctc cac ttg gtg atc atg aac ttc 336
 Asp Phe Val Leu Cys Asn Leu Val Leu His Leu Val Ile Met Asn Phe
 100 105 110

50 ctt ggt tga 345
 Leu Gly

55 <210> 128
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 1 5 10 15

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 20 25 30

70 Val Val Phe Ala Val Ala Thr Ala Leu Ile Gln Val Val Tyr Met Gly
 35 40 45

Ile Val Gly Ser Phe Pro Phe Asn Ser Phe Leu Ser Gly Val Leu Ser

	50	55	60	
5	Cys Ile Gly Thr Ala Val Leu Ala Val Cys Leu Arg Ile Gln Val Asn 65 70 75 80			
10	Lys Asp Asn Lys Glu Phe Lys Asp Leu Pro Pro Glu Arg Ala Phe Ala 85 90 95			
15	Asp Phe Val Leu Cys Asn Leu Val Leu His Leu Val Ile Met Asn Phe 100 105 110			
20	Leu Gly			
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35	gcc acg tac ggc ttc gcc gcc ggc gtc gtc tac acc aac gac tgg ctc Ala Thr Tyr Gly Phe Ala Ala Gly Val Val Tyr Thr Asn Asp Trp Leu 20 25 30			96
40	ccg gcc aag gcc acc tgg tac ggc cag ccc aac ggc gcc gga ccc gac Pro Ala Lys Ala Thr Trp Tyr Gly Gln Pro Asn Gly Ala Gly Pro Asp 35 40 45			144
45	gac aac ggc ggt gcg tgc ggc ttc aag aac acc aac cag tac ccg ttc Asp Asn Gly Gly Ala Cys Gly Phe Lys Asn Thr Asn Gln Tyr Pro Phe 50 55 60			192
50	atg tcc atg acc tcc tgc ggc aac gag cct ctg ttc cag gac ggc aag Met Ser Met Thr Ser Cys Gly Asn Glu Pro Leu Phe Gln Asp Gly Lys 65 70 75 80			240
55	ggc tgt ggc gcc tgc tac cag ata cgg tgc acc aac aac ccg tcg tgc Gly Cys Gly Ala Cys Tyr Gln Ile Arg Cys Thr Asn Asn Pro Ser Cys 85 90 95			288
60	tcc ggg cag ccc agg acg gtg atc atc acg gac atg aac tac tac ccc Ser Gly Gln Pro Arg Thr Val Ile Ile Thr Asp Met Asn Tyr Pro 100 105 110			336
65	gtg gcc agg tac cac ttc gac ctg agc ggc acg gcg ttc ggc gcc atg Val Ala Arg Tyr His Phe Asp Leu Ser Gly Thr Ala Phe Gly Ala Met 115 120 125			384
	gcg agg ccg ggg ctg aac gac cag ctc cgc cac gcc ggc atc atc gac Ala Arg Pro Gly Leu Asn Asp Gln Leu Arg His Ala Gly Ile Ile Asp 130 135 140			432
	atc cag ttc agg cgc gtc ccg tgc tac cac cgc ggc ctc tac gtg aac Ile Gln Phe Arg Arg Val Pro Cys Tyr His Arg Gly Leu Tyr Val Asn			480

	145	150	155	160	
5	ttc cac gtc gag gcc ggg tcc aac ccg gtg tac ctc gcc gtg ctg gtg Phe His Val Glu Ala Gly Ser Asn Pro Val Tyr Leu Ala Val Leu Val	165	170	175	528
10	gag ttc gcc aac aag gac ggc acg gtg gtg cag ctc gac gtc atg gag Glu Phe Ala Asn Lys Asp Gly Thr Val Val Gln Leu Asp Val Met Glu	180	185	190	576
15	tcg ctc ccc agc ggc aag ccg acg cgg gtc tgg acg ccc atg cgc cgc Ser Leu Pro Ser Gly Lys Pro Thr Arg Val Trp Thr Pro Met Arg Arg	195	200	205	624
20	tcc tgg gga tcc atc tgg cgc ctc gac gcc aac cac cgc ctc cag gcc Ser Trp Gly Ser Ile Trp Arg Leu Asp Ala Asn His Arg Leu Gln Gly	210	215	220	672
25	ccc ttm tcc ctc cgc atg gtc agc gag tcc ggc cag acc gtc atc gcc Pro Xaa Ser Leu Arg Met Val Ser Glu Ser Gly Gln Thr Val Ile Ala	225	230	235	720
30	cac cag gtc atc ccg gcc aac tgg agg gcc aac acc aac tac ggc tcc His Gln Val Ile Pro Ala Asn Trp Arg Ala Asn Thr Asn Tyr Gly Ser	245	250	255	768
35	aaa gtc cag ttc cgt tga Lys Val Gln Phe Arg	260			786
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50	Ala Thr Tyr Gly Phe Ala Ala Gly Val Val Tyr Thr Asn Asp Trp Leu	20	25	30	
55	Pro Ala Lys Ala Thr Trp Tyr Gly Gln Pro Asn Gly Ala Gly Pro Asp	35	40	45	
60	Asp Asn Gly Gly Ala Cys Gly Phe Lys Asn Thr Asn Gln Tyr Pro Phe	50	55	60	
65	Met Ser Met Thr Ser Cys Gly Asn Glu Pro Leu Phe Gln Asp Gly Lys	65	70	75	80
70	Gly Cys Gly Ala Cys Tyr Gln Ile Arg Cys Thr Asn Asn Pro Ser Cys	85	90	95	
75	Ser Gly Gln Pro Arg Thr Val Ile Ile Thr Asp Met Asn Tyr Tyr Pro				

	100	105	110	
5	Val Ala Arg Tyr His Phe Asp	Leu Ser Gly Thr Ala Phe Gly Ala Met		
	115	120	125	
10	Ala Arg Pro Gly Leu Asn Asp	Gln Leu Arg His Ala Gly Ile Ile Asp		
	130	135	140	
15	Ile Gln Phe Arg Arg Val Pro Cys Tyr His	Arg Gly Leu Tyr Val Asn		
	145	150	155	160
20	Phe His Val Glu Ala Gly Ser Asn Pro Val Tyr	Leu Ala Val Leu Val		
	165	170	175	
25	Glu Phe Ala Asn Lys Asp Gly Thr Val Val Gln Leu Asp	Val Met Glu		
	180	185	190	
30	Ser Leu Pro Ser Gly Lys Pro Thr Arg Val Trp Thr	Pro Met Arg Arg		
	195	200	205	
35	Ser Trp Gly Ser Ile Trp Arg Leu Asp Ala Asn His	Arg Leu Gln Gly		
	210	215	220	
40	Pro Xaa Ser Leu Arg Met Val Ser Glu Ser Gly Gln Thr Val Ile Ala			
	225	230	235	240
45	His Gln Val Ile Pro Ala Asn Trp Arg Ala Asn Thr Asn Tyr Gly Ser			
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	Ala Asp Gly Ala Lys Arg Arg Val Cys His Phe Tyr Asp Ala Glu Val			
	20 25 30			
75	ggg aac tac tac tgc ggg cag ggg cac ccg atg aag ccc cac cgc atc			144
	Gly Asn Tyr Tyr Cys Gly Gln Gly His Pro Met Lys Pro His Arg Ile			
	35 40 45			
80	cgg atg acc cac gcg ctg ctc gcc cac tac ggc ctc ctc gac cag atg			192
	Arg Met Thr His Ala Leu Leu Ala His Tyr Gly Leu Leu Asp Gln Met			

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10	cac gcc gac gac tac gtc gcc ttc ctc cgc tcc gtc acg ccg gag acc His Ala Asp Asp Tyr Val Ala Phe Leu Arg Ser Val Thr Pro Glu Thr 85 90 95						288
15	cag cag gac cag atc cgg gcg ctc aag cgc ttc aac gtc ggc gag gac Gln Gln Asp Gln Ile Arg Ala Leu Lys Arg Phe Asn Val Gly Glu Asp 100 105 110						336
20	tgc ccc gtc ttc gac ggc ctc tac agc ttc tgc cag acc tac gcc ggg Cys Pro Val Phe Asp Gly Leu Tyr Ser Phe Cys Gln Thr Tyr Ala Gly 115 120 125						384
25	gga tcc gtc ggc ggc gcc gtc aag ctc aac cac ggc cac gac atc gcc Gly Ser Val Gly Gly Ala Val Lys Leu Asn His Gly His Asp Ile Ala 130 135 140						432
30	atc aac tgg gcc ggc ggc ctc cac cac gcc aag aag tgc gag gcc tcc Ile Asn Trp Ala Gly Gly Leu His His Ala Lys Lys Cys Glu Ala Ser 145 150 155 160						480
35	ggc ttc tgc tac gtc aac gac atc gtc ctc gcc atc ctc gag ctc ctc Gly Phe Cys Tyr Val Asn Asp Ile Val Leu Ala Ile Leu Glu Leu Leu 165 170 175						528
40	aaa tac cac cag cgt gtt ctc tat gtg gac atc gat atc cac cat ggg Lys Tyr His Gln Arg Val Leu Tyr Val Asp Ile Asp Ile His His Gly 180 185 190						576
45	gat ggt gtg gag gag gcg ttt tac acg acg gac agg gtg atg acg gtc Asp Gly Val Glu Glu Ala Phe Tyr Thr Thr Asp Arg Val Met Thr Val 195 200 205						624
50	tcg ttc cac aag ttt ggg gat tat ttc ccg gga aca ggg gat atc cgt Ser Phe His Lys Phe Gly Asp Tyr Phe Pro Gly Thr Gly Asp Ile Arg 210 215 220						672
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70	tgc ggc gct gat tcg ttg tcc ggc gat agg ttg ggc tgt ttc aat ctc Cys Gly Ala Asp Ser Leu Ser Gly Asp Arg Leu Gly Cys Phe Asn Leu 275 280 285						864
75	tca ggg aaa ggt cat gca gaa tgt gta aag ttc atg agg tct ttc aat Ser Gly Lys Gly His Ala Glu Cys Val Lys Phe Met Arg Ser Phe Asn 290 295 300						912
80	gtt ccg ttg ctt ctt ctt ggt ggt ggt gga tat gcc ata aga aat gtt Val Pro Leu Leu Leu Leu Gly Gly Gly Gly Tyr Ala Ile Arg Asn Val 305 310 315 320						960
85	gca cgc tgt tgg tgc tat gag aca gga gtt gca ctt ggt cat gag ctc Ala Arg Cys Trp Cys Tyr Glu Thr Gly Val Ala Leu Gly His Glu Leu 325 330 335 340						1008

	325	330	335	
5	acc gac aag atg cct cca aat gag tat ttt gag tat ttt ggt cca gaa Thr Asp Lys Met Pro Pro Asn Glu Tyr Phe Glu Tyr Phe Gly Pro Glu 340 345 350	1056		
10	tac agt ctt ttc gtt gca gca agt aac atg gag aac aga aat acc aac Tyr Ser Leu Phe Val Ala Ala Ser Asn Met Glu Asn Arg Asn Thr Asn 355 360 365	1104		
15	aag caa ttg gag gaa ata aaa tgc aac att ctg gac aat ctt tca aaa Lys Gln Leu Glu Glu Ile Lys Cys Asn Ile Leu Asp Asn Leu Ser Lys 370 375 380	1152		
20	ctt caa cat gct cct agt gtc caa ttt gaa gag cga att cct gaa aca Leu Gln His Ala Pro Ser Val Gln Phe Glu Glu Arg Ile Pro Glu Thr 385 390 395 400	1200		
25	aag tta cct gag cca gat gaa gat caa gag gat cca gat gaa agg cac Lys Leu Pro Glu Pro Asp Glu Asp Gln Glu Asp Pro Asp Glu Arg His 405 410 415	1248		
30	gac cct gac tct gat atg gta ttg gat gat cac aaa cct atg gga cac Asp Pro Asp Ser Asp Met Val Leu Asp Asp His Lys Pro Met Gly His 420 425 430	1296		
35	tca gca aga agc ctt att cgc aac atc gaa gtt aag aga gaa atc act Ser Ala Arg Ser Leu Ile Arg Asn Ile Glu Val Lys Arg Glu Ile Thr 435 440 445	1344		
40	gaa tca gag gcc aaa gat cag cat ggt aag aga ttg aca act gaa cat Glu Ser Glu Ala Lys Asp Gln His Gly Lys Arg Leu Thr Thr Glu His 450 455 460	1392		
45	aaa gga cca gaa ccg atg gca gac gat cct ggt tcc tcc aag caa gct Lys Gly Pro Glu Pro Met Ala Asp Asp Pro Gly Ser Ser Lys Gln Ala 465 470 475 480	1440		
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75	Gly Asn Tyr Tyr Cys Gly Gln Gly His Pro Met Lys Pro His Arg Ile 35 40 45			
80	Arg Met Thr His Ala Leu Leu Ala His Tyr Gly Leu Leu Asp Gln Met 50 55 60			
85	Gln Val Leu Lys Pro His Pro Ala Arg Asp Arg Asp Leu Cys Arg Phe 65 70 75 80			

5 His Ala Asp Asp Tyr Val Ala Phe Leu Arg Ser Val Thr Pro Glu Thr
 85 90 95
 Gln Gln Asp Gln Ile Arg Ala Leu Lys Arg Phe Asn Val Gly Glu Asp
 100 105 110
 10 Cys Pro Val Phe Asp Gly Leu Tyr Ser Phe Cys Gln Thr Tyr Ala Gly
 115 120 125
 15 Gly Ser Val Gly Gly Ala Val Lys Leu Asn His Gly His Asp Ile Ala
 130 135 140
 20 Ile Asn Trp Ala Gly Gly Leu His His Ala Lys Lys Cys Glu Ala Ser
 145 150 155 160
 Gly Phe Cys Tyr Val Asn Asp Ile Val Leu Ala Ile Leu Glu Leu Leu
 165 170 175
 25 Lys Tyr His Gln Arg Val Leu Tyr Val Asp Ile Asp Ile His His Gly
 180 185 190
 30 Asp Gly Val Glu Glu Ala Phe Tyr Thr Thr Asp Arg Val Met Thr Val
 195 200 205
 35 Ser Phe His Lys Phe Gly Asp Tyr Phe Pro Gly Thr Gly Asp Ile Arg
 210 215 220
 40 Asp Ile Gly Tyr Ser Glu Gly Lys Tyr Tyr Cys Leu Asn Val Pro Leu
 225 230 235 240
 Asp Asp Gly Ile Asp Asp Asp Ser Tyr Gln Ser Ile Phe Lys Pro Ile
 245 250 255
 45 Ile Ser Lys Val Met Glu Met Tyr Arg Pro Gly Ala Val Val Leu Gln
 260 265 270
 50 Cys Gly Ala Asp Ser Leu Ser Gly Asp Arg Leu Gly Cys Phe Asn Leu
 275 280 285
 55 Ser Gly Lys Gly His Ala Glu Cys Val Lys Phe Met Arg Ser Phe Asn
 290 295 300
 60 Val Pro Leu Leu Leu Leu Gly Gly Gly Gly Tyr Ala Ile Arg Asn Val
 305 310 315 320
 Ala Arg Cys Trp Cys Tyr Glu Thr Gly Val Ala Leu Gly His Glu Leu
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 65 Thr Asp Lys Met Pro Pro Asn Glu Tyr Phe Glu Tyr Phe Gly Pro Glu
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Tyr Ser Leu Phe Val Ala Ala Ser Asn Met Glu Asn Arg Asn Thr Asn
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 Lys Gln Leu Glu Glu Ile Lys Cys Asn Ile Leu Asp Asn Leu Ser Lys
 370 375 380
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 Leu Gln His Ala Pro Ser Val Gln Phe Glu Glu Arg Ile Pro Glu Thr
 385 390 395 400
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 Lys Leu Pro Glu Pro Asp Glu Asp Gln Glu Asp Pro Asp Glu Arg His
 405 410 415
 20
 Asp Pro Asp Ser Asp Met Val Leu Asp Asp His Lys Pro Met Gly His
 420 425 430
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 Ser Ala Arg Ser Leu Ile Arg Asn Ile Glu Val Lys Arg Glu Ile Thr
 435 440 445
 Glu Ser Glu Ala Lys Asp Gln His Gly Lys Arg Leu Thr Thr Glu His
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 Leu Ala Leu Ala Leu Ala Ser Val Ala Ala Val Ala Gly Glu Val Phe
 20 25 30
 60 ttc cag gag aag ttc gaa gat gga tgg gaa agt cgg tgg gtc aag tca 144
 Phe Gln Glu Lys Phe Glu Asp Gly Trp Glu Ser Arg Trp Val Lys Ser
 35 40 45
 gaa tgg aag aag gat gag aac atg gct ggt gaa tgg aac cac aca tct 192
 Glu Trp Lys Lys Asp Glu Asn Met Ala Gly Glu Trp Asn His Thr Ser
 50 55 60
 65 ggg aag tgg aat gga gat cct gag gac aaa ggt atc caa acc tct gag 240
 Gly Lys Trp Asn Gly Asp Pro Glu Asp Lys Gly Ile Gln Thr Ser Glu
 65 70 75 80

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	Asp Tyr Arg Phe Tyr Ala Ile Ser Ala Glu Tyr Pro Glu Phe Ser Asn	
	85 90 95	
5	aag gat aaa acc ctg gtg ctg cag ttc tct gta aag cat gag caa aag	336
	Lys Asp Lys Thr Leu Val Leu Gln Phe Ser Val Lys His Glu Gln Lys	
	100 105 110	
10	ctt gac tgt ggt ggt gga tat gtc aag ttg ctt ggt ggt gat gtt gac	384
	Leu Asp Cys Gly Gly Gly Tyr Val Lys Leu Leu Gly Gly Asp Val Asp	
	115 120 125	
15	cag aag aaa ttt ggt ggg gac aca ccg tac agc att atg ttt gga cca	432
	Gln Lys Lys Phe Gly Gly Asp Thr Pro Tyr Ser Ile Met Phe Gly Pro	
	130 135 140	
20	gac atc tgt ggg tac agc acc aag aag gtc cat act atc ttt act aag	480
	Asp Ile Cys Gly Tyr Ser Thr Lys Lys Val His Thr Ile Phe Thr Lys	
	145 150 155 160	
25	aat gac aag aac cat ttg atc aag aag gat gtc ccc tgc gag act gat	528
	Asn Asp Lys Asn His Leu Ile Lys Lys Asp Val Pro Cys Glu Thr Asp	
	165 170 175	
30	cag ctg tcc cat gtg tac act ttg atc atc cat cct gat gct aca tac	576
	Gln Leu Ser His Val Tyr Thr Leu Ile Ile His Pro Asp Ala Thr Tyr	
	180 185 190	
35	agc ata ctt att gac aat gtt gag aag caa tct ggc agc atc tac gag	624
	Ser Ile Leu Ile Asp Asn Val Glu Lys Gln Ser Gly Ser Ile Tyr Glu	
	195 200 205	
40	cac tgg gat att ctg cct ccg aag caa atc aag gac cca gaa gct aag	672
	His Trp Asp Ile Leu Pro Pro Lys Gln Ile Lys Asp Pro Glu Ala Lys	
	210 215 220	
45	aag cca gag gac tgg gat gac aag gag tac att cct gac cct gag gac	720
	Lys Pro Glu Asp Trp Asp Lys Lys Glu Tyr Ile Pro Asp Pro Glu Asp	
	225 230 235 240	
50	aag aag cct gag gga tac gat gat att ccc aag gaa atc cct gac cct	768
	Lys Lys Pro Glu Gly Tyr Asp Asp Ile Pro Lys Glu Ile Pro Asp Pro	
	245 250 255	
55	gat gct aag aag cct gag gct ggg gct gat gag gaa gat ggt gag tgg	816
	Asp Ala Lys Lys Pro Glu Ala Gly Ala Asp Glu Glu Asp Gly Glu Trp	
	260 265 270	
60	act gca cca acc atc cgt aac cct gag tac aag gga cca tgg aag caa	864
	Thr Ala Pro Thr Ile Arg Asn Pro Glu Tyr Lys Gly Pro Trp Lys Gln	
	275 280 285	
65	aag aaa atc aag aac cct aac tac cag ggc aaa tgg aag ccg ccg atg	912
	Lys Lys Ile Lys Asn Pro Asn Tyr Gln Gly Lys Trp Lys Pro Pro Met	
	290 295 300	
70	atc gcc acc cca gac ttc caa gat gat cct tac atc tac gcc ttt gac	960
	Ile Ala Thr Pro Asp Phe Gln Asp Asp Pro Tyr Ile Tyr Ala Phe Asp	
	305 310 315 320	
75	agc ctg aag tcc att gga att gag ttg tgg cag gtc aaa tca ggg act	1008
	Ser Leu Lys Ser Ile Gly Ile Glu Leu Trp Gln Val Lys Ser Gly Thr	
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80	ctg ttt gac aac att ctg att act gac gat gct gct ttg gcc aag aca	1056
	Leu Phe Asp Asn Ile Leu Ile Thr Asp Asp Ala Ala Leu Lys Thr	
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 Gly Glu Asp Asp Asp Asp Leu Asp Asp Glu Asp Ala Glu Asp Glu Asp
 385 390 395 400
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 Glu Trp Lys Lys Asp Glu Asn Met Ala Gly Glu Trp Asn His Thr Ser
 50 50 55 60
 45 Gly Lys Trp Asn Gly Asp Pro Glu Asp Lys Gly Ile Gln Thr Ser Glu
 65 70 75 80
 50 Asp Tyr Arg Phe Tyr Ala Ile Ser Ala Glu Tyr Pro Glu Phe Ser Asn
 85 90 95
 Lys Asp Lys Thr Leu Val Leu Gln Phe Ser Val Lys His Glu Gln Lys
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 145 150 155 160

Asn Asp Lys Asn His Leu Ile Lys Lys Asp Val Pro Cys Glu Thr Asp
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 Gln Leu Ser His Val Tyr Thr Leu Ile Ile His Pro Asp Ala Thr Tyr
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 Ser Ile Leu Ile Asp Asn Val Glu Lys Gln Ser Gly Ser Ile Tyr Glu
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 His Trp Asp Ile Leu Pro Pro Lys Gln Ile Lys Asp Pro Glu Ala Lys
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 225 230 235 240
 Lys Lys Pro Glu Gly Tyr Asp Asp Ile Pro Lys Glu Ile Pro Asp Pro
 245 250 255
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 Asp Ala Lys Lys Pro Glu Ala Gly Ala Asp Glu Glu Asp Gly Glu Trp
 260 265 270
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 Thr Ala Pro Thr Ile Arg Asn Pro Glu Tyr Lys Gly Pro Trp Lys Gln
 275 280 285
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 Lys Lys Ile Lys Asn Pro Asn Tyr Gln Gly Lys Trp Lys Pro Pro Met
 290 295 300
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 Ile Ala Thr Pro Asp Phe Gln Asp Asp Pro Tyr Ile Tyr Ala Phe Asp
 305 310 315 320
 Ser Leu Lys Ser Ile Gly Ile Glu Leu Trp Gln Val Lys Ser Gly Thr
 325 330 335
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 Leu Phe Asp Asn Ile Leu Ile Thr Asp Asp Ala Ala Leu Ala Lys Thr
 340 345 350
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 Phe Ala Glu Glu Thr Trp Ala Lys His Lys Asp Ala Glu Lys Ala Ala
 355 360 365
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 Gly Glu Asp Asp Asp Asp Leu Asp Asp Glu Asp Ala Glu Asp Glu Asp
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 ggc gag cac aag aag gaa gac gag cac aag aag gag ggg gag cac cac 96
 Gly Glu His Lys Lys Glu Asp Glu His Lys Lys Glu Gly Glu His His
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 aag aag gac ggg gag cac aag gaa ggc gtg gtg gag aag atc aag gac 144
 Lys Lys Asp Gly Glu His Lys Glu Gly Val Val Glu Lys Ile Lys Asp
 35 40 45
 aag atc acc ggc gac cac ggc gac ggc ggc gag cac aag gag aag aag 192
 Lys Ile Thr Gly Asp His Gly Asp Gly Gly Glu His Lys Glu Lys Lys
 50 55 60
 gag aag aag aag aag aag gag aag aag cac ggc gag gag ggc tac cac 240
 Asp Lys Lys Lys Lys Lys Glu Lys Lys His Gly Glu Glu Gly Tyr His
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 55 35 40 45
 Lys Ile Thr Gly Asp His Gly Asp Gly Gly Glu His Lys Glu Lys Lys
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ggt gct cgg gcc acg gcg gcg acg aca cca cgg agg cag tct ccg gcg 96
 Gly Ala Arg Ala Thr Ala Ala Thr Pro Arg Arg Gln Ser Pro Ala
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gga gct ggg agc ccc tgc cag cgc gac gcg cgg tgg ggt gac acg agc 144
 Gly Ala Gly Ser Pro Ser Gln Arg Asp Ala Arg Trp Gly Asp Thr Ser
 35 40 45

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tcc tac ggt gct aga aag aag cac agg gtt ttt tgc cag ctt cca aat 192
 Ser Tyr Gly Ala Arg Lys Lys His Arg Val Phe Cys Gln Leu Pro Asn
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agt gat tgg gcc tta tgc act gta att aca acc tcc ggt gac gat tcc 240
 Ser Asp Trp Ala Leu Cys Thr Val Ile Thr Thr Ser Gly Asp Asp Ser
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35

gta cta aag ctt cct gaa gga aaa gta ctg agg ttg aaa aca gag agc 288
 Val Leu Lys Leu Pro Glu Gly Lys Val Leu Arg Leu Lys Thr Glu Ser
 85 90 95

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ctt gaa gct gca aat cct gaa att ctt gac ggg gtg gat gat ctt atg 336
 Leu Glu Ala Ala Asn Pro Glu Ile Leu Asp Gly Val Asp Asp Leu Met
 100 105 110

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cag cta agt tat cta agt gag cca tcc gtt ctg tac aat ttg cag tac 384
 Gln Leu Ser Tyr Leu Ser Glu Pro Ser Val Leu Tyr Asn Leu Gln Tyr
 115 120 125

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aga tac tct caa gac ttg ata tat act aaa gca ggt cca gtt ttg gtg 432
 Arg Tyr Ser Gln Asp Leu Ile Tyr Thr Lys Ala Gly Pro Val Leu Val
 130 135 140

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gcg gtc aat cct ttt aag aaa gtt cct cta tat ggt aat gag tac att 480
 Ala Val Asn Pro Phe Lys Lys Val Pro Leu Tyr Gly Asn Glu Tyr Ile
 145 150 155 160

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gat gca tat aga aat aaa aca aag gat agc cca cac gtt tat gca ata 528
 Asp Ala Tyr Arg Asn Lys Thr Lys Asp Ser Pro His Val Tyr Ala Ile
 165 170 175

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gca gat tca gcc ctc cgt gaa atg aaa aga gat gaa gtt aac cag tct 576
 Ala Asp Ser Ala Leu Arg Glu Met Lys Arg Asp Glu Val Asn Gln Ser
 180 185 190

atc atc ata agt ggt gag agt gga gca gga aag aca gaa act gca aag 624
 Ile Ile Ile Ser Gly Glu Ser Gly Ala Gly Lys Thr Glu Thr Ala Lys
 195 200 205

att gct atg cag tat ttg gct tct ctt gga ggt ggg ggt ggc ata gaa 672
 Ile Ala Met Gln Tyr Leu Ala Ser Leu Gly Gly Gly Gly Gly Ile Glu
 210 215 220

tat gag atc cta caa acc aac cca ata ctc gag gct ttt ggc aac gca 720

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	Lys	Thr	Leu	Arg	Asn	Asp	Asn	Ser	Ser	Arg	Phe	Gly	Lys	Leu	Ile	Glu	
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10	att	cat	ttt	agt	aca	act	gga	agg	att	tgt	ggc	gcc	atg	att	caa	aca	816
	Ile	His	Phe	Ser	Thr	Thr	Gly	Arg	Ile	Cys	Gly	Ala	Met	Ile	Gln	Thr	
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	Phe	Leu	Leu	Glu	Lys	Ser	Arg	Val	Val	Gln	Cys	Ala	Val	Gly	Glu	Arg	
					275					280					285		
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	Ser	Tyr	His	Ile	Phe	Tyr	Gln	Leu	Cys	Ala	Gly	Ala	Pro	Ala	Ser	Leu	
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	Arg	Asp	Lys	Leu	Asn	Met	Lys	Lys	Ala	Asp	Glu	Tyr	Lys	Tyr	Leu	Lys	
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	Gln	Ser	Cys	Cys	Tyr	Ser	Ile	Ala	Gly	Val	Asp	Asp	Ala	Gln	Met	Phe	
					325					330					335		
35	cgt	act	gta	acg	gaa	gct	atg	aac	atc	gtt	cat	atc	agc	aaa	gag	gac	1056
	Arg	Thr	Val	Thr	Glu	Ala	Met	Asn	Ile	Val	His	Ile	Ser	Lys	Glu	Asp	
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	Gln	Asp	Asn	Val	Phe	Thr	Met	Val	Ser	Ala	Ile	Leu	Trp	Leu	Gly	Asp	
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	Val	Ser	Phe	Thr	Val	Ile	Asp	Asn	Glu	Asn	His	Val	Glu	Ile	Val	Val	
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	Asp	Glu	Ala	Ala	Glu	Thr	Val	Ala	Arg	Leu	Leu	Gly	Cys	Ser	Ile	Glu	
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55	gat	ctc	aat	tta	gct	ttg	tcg	aag	agg	cac	atg	aaa	gtt	aat	aat	gaa	1248
	Asp	Leu	Asn	Leu	Ala	Leu	Ser	Lys	Arg	His	Met	Lys	Val	Asn	Asn	Glu	
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	Asn	Ile	Val	Gln	Lys	Leu	Thr	Leu	Ser	Gln	Ala	Ile	Asp	Thr	Arg	Asp	
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65	gcg	ttg	gcc	aag	tca	ctc	tat	gcc	agt	ttg	ttt	gag	tgg	ctt	gtt	gaa	1344
	Ala	Leu	Ala	Lys	Ser	Leu	Tyr	Ala	Ser	Leu	Phe	Glu	Trp	Leu	Val	Glu	
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	Gln	Ile	Asn	Lys	Ser	Leu	Ser	Val	Gly	Lys	Arg	Arg	Thr	Gly	Arg	Ser	
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	Ile	Ser	Ile	Leu	Asp	Ile	Tyr	Gly	Phe	Glu	Ser	Phe	Asp	Arg	Asn	Ser	
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	Phe	Glu	Gln	Phe	Cys	Ile	Asn	Tyr	Ala	Asn	Glu	Arg	Leu	Gln	Gln	His	
					485					490					495		
85	ttc	aat	cgc	cat	ttg	ttt	aag	ctt	gaa	caa	gag	gaa	tac	gtt	gaa	gat	1536

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	Gly	Ile	Asp	Trp	Ala	Lys	Val	Glu	Phe	Glu	Asp	Asn	Gln	Asn	Cys	Leu	
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	Asn	Leu	Phe	Glu	Lys	Lys	Pro	Leu	Gly	Leu	Leu	Ser	Leu	Leu	Asp	Glu	
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	Glu	Ser	Thr	Phe	Pro	Asn	Ala	Thr	Asp	Leu	Thr	Phe	Ala	Asn	Lys	Leu	
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	aag	caa	cat	ctg	aac	aat	aat	tct	tgc	ttc	cga	gga	gaa	aga	ggc	aag	1728
	Lys	Gln	His	Leu	Asn	Asn	Ser	Cys	Phe	Arg	Gly	Glu	Arg		Gly	Lys	
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	Ala	Phe	Ala	Val	Arg	His	Tyr	Ala	Gly	Glu	Val	Ala	Tyr	Asp	Thr	Ser	
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	Gly	Phe	Leu	Glu	Lys	Asn	Arg	Asp	Leu	Leu	His	Met	Asp	Ser	Ile	Gln	
			595					600					605				
30	ttc	ctt	gcc	aaa	tgc	aaa	tcc	tca	cta	cca	caa	atg	ttt	gca	tcc	aaa	1872
	Phe	Leu	Ala	Lys	Cys	Lys	Ser	Ser	Leu	Pro	Gln	Met	Phe	Ala	Ser	Lys	
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	Met	Leu	Ser	Gln	Ser	Asp	Asn	Pro	Leu	Pro	Val	Pro	Tyr	Arg	Asn	Ser	
	625					630					635					640	
	gct	gct	gac	tca	cag	aag	tta	agt	gtt	gcg	atg	aag	ttt	aag	gga	caa	1968
	Ala	Ala	Asp	Ser	Gln	Lys	Leu	Ser	Val	Ala	Met	Lys	Phe	Lys	Gly	Gln	
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40	ttg	ttc	caa	ctt	atg	caa	aga	ctc	gaa	agt	aca	aca	cca	cac	ttt	ata	2016
	Leu	Phe	Gln	Leu	Met	Gln	Arg	Leu	Glu	Ser	Thr	Thr	Pro	His	Phe	Ile	
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	Arg	Cys	Ile	Lys	Pro	Asn	Asn	Leu	Gln	Leu	Pro	Ala	Ile	Tyr	Glu	Gln	
			675					680					685				
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	Gly	Leu	Val	Leu	Gln	Gln	Leu	Lys	Cys	Cys	Gly	Val	Leu	Glu	Val	Val	
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55	cga	att	tca	aga	tct	gga	tat	cca	aca	aga	atg	act	cat	cag	aaa	ttt	2160
	Arg	Ile	Ser	Arg	Ser	Gly	Tyr	Pro	Thr	Arg	Met	Thr	His	Gln	Lys	Phe	
	705					710					715					720	
	gct	cga	cgg	tat	ggc	ttt	ctt	ctt	ctt	gag	gat	gtc	gca	tct	caa	gac	2208
	Ala	Arg	Arg	Tyr	Gly	Phe	Leu	Leu	Leu	Glu	Asp	Val	Ala	Ser	Gln	Asp	
					725					730					735		
60	cca	ctt	agt	gtt	tcg	gtt	gca	att	ctt	cac	cag	ttt	aac	att	ttg	cct	2256
	Pro	Leu	Ser	Val	Ser	Val	Ala	Ile	Leu	His	Gln	Phe	Asn	Ile	Leu	Pro	
				740					745					750			
65	gag	atg	tat	caa	gtt	ggg	tac	aca	aaa	ttg	ttc	ttt	cga	act	ggc	cag	2304
	Glu	Met	Tyr	Gln	Val	Gly	Tyr	Thr	Lys	Leu	Phe	Phe	Arg	Thr	Gly	Gln	
			755					760					765				
	att	ggc	aaa	ctt	gaa	gac	act	cgg	aac	cgt	act	ctg	cat	ggg	att	tta	2352

	Ile Gly Lys Leu Glu Asp Thr Arg Asn Arg Thr Leu His Gly Ile Leu	
	770 775 780	
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	785 790 795 800	
10	gaa cga ata aga gga gtt ttg gct ctt caa tca ttt att cga ggt gag Glu Arg Ile Arg Gly Val Leu Ala Leu Gln Ser Phe Ile Arg Gly Glu	2448
	805 810 815	
15	aat gca aga aaa atg tat tcg tct ctg gca agg aaa cac agg gca gcc Asn Ala Arg Lys Met Tyr Ser Ser Leu Ala Arg Lys His Arg Ala Ala	2496
	820 825 830	
20	att att tta cag aga aat cta aaa tgc tgg ctt gca aga aga tat ttc Ile Ile Leu Gln Arg Asn Leu Lys Cys Trp Leu Ala Arg Arg Tyr Phe	2544
	835 840 845	
25	gtt aac ata cgg aag gct tca gta gta ata caa tct ggc att cgt ggt Val Asn Ile Arg Lys Ala Ser Val Val Ile Gln Ser Gly Ile Arg Gly	2592
	850 855 860	
30	tgt ctt gtt cga aga tgt gct ggc aat gtt gat cta ttg aat gtg cta Cys Leu Val Arg Arg Cys Ala Gly Asn Val Asp Leu Leu Asn Val Leu	2640
	865 870 875 880	
35	aga gaa ttc gaa tca aag aag gag gca gag ggt gac caa att ttg att Arg Glu Phe Glu Ser Lys Lys Glu Ala Glu Gly Asp Gln Ile Leu Ile	2688
	885 890 895	
40	aag gca tca ttc ctg gct gag cta caa agg cga ata tta aag gcc gag Lys Ala Ser Phe Leu Ala Glu Leu Gln Arg Arg Ile Leu Lys Ala Glu	2736
	900 905 910	
45	gcg aca gtc cga gaa aag gat gaa gag aac gag atg ctt cag cag cga Ala Thr Val Arg Glu Lys Asp Glu Glu Asn Glu Met Leu Gln Gln Arg	2784
	915 920 925	
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	930 935 940	
55	gcg atg gag gaa atg tgg cag aag caa atg cgg tca tta caa tca agc Ala Met Glu Glu Met Trp Gln Lys Gln Met Arg Ser Leu Gln Ser Ser	2880
	945 950 955 960	
60	cta tcc gta gca aag aag agc ctt gct ctt gat gag acg cct agg atg Leu Ser Val Ala Lys Lys Ser Leu Ala Leu Asp Glu Thr Pro Arg Met	2928
	965 970 975	
65	tcc gac tca tcg gtc gac cag agc tgg gag agc aat ggg gtt cac att Ser Asp Ser Ser Val Asp Gln Ser Trp Glu Ser Asn Gly Val His Ile	2976
	980 985 990	
70	ggc agc gcg tcg cag ctg gtt cca cgc acc gtt gga cgg gag atg aat Gly Ser Ala Ser Gln Leu Val Pro Arg Thr Val Gly Arg Glu Met Asn	3024
	995 1000 1005	
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	1010 1015 1020	
80	cgc agc cag gtc ttc gct gat gat gcc aag ttc ttg gtt gag gtc Arg Ser Gln Val Phe Ala Asp Asp Ala Lys Phe Leu Val Glu Val	3114
	1025 1030 1035	
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Lys Ser Gly Gln Ala Asp Ala Ser Leu Asn Pro Asp Met Glu Leu
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 10 tcg cgc ata agg gag acg aag gtg atc ctc aac aag ctg ggg agc 3249
 Ser Arg Ile Arg Glu Thr Lys Val Ile Leu Asn Lys Leu Gly Ser
 1070 1075 1080
 15 ggc aac gaa tcg tcg ccc aac tcg gtg aag cga aaa tgg tgg ggg 3294
 Gly Asn Glu Ser Ser Pro Asn Ser Val Lys Arg Lys Trp Trp Gly
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 30 <220>
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 20 25 30
 45 Gly Ala Gly Ser Pro Ser Gln Arg Asp Ala Arg Trp Gly Asp Thr Ser
 35 40 45
 50 Ser Tyr Gly Ala Arg Lys Lys His Arg Val Phe Cys Gln Leu Pro Asn
 50 55 60
 55 Ser Asp Trp Ala Leu Cys Thr Val Ile Thr Thr Ser Gly Asp Asp Ser
 65 70 75 80
 60 Val Leu Lys Leu Pro Glu Gly Lys Val Leu Arg Leu Lys Thr Glu Ser
 85 90 95
 65 Leu Glu Ala Ala Asn Pro Glu Ile Leu Asp Gly Val Asp Asp Leu Met
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 70 Gln Leu Ser Tyr Leu Ser Glu Pro Ser Val Leu Tyr Asn Leu Gln Tyr
 115 120 125

Arg Tyr Ser Gln Asp Leu Ile Tyr Thr Lys Ala Gly Pro Val Leu Val
 130 135 140
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 Ala Val Asn Pro Phe Lys Lys Val Pro Leu Tyr Gly Asn Glu Tyr Ile
 145 150 155 160
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 Asp Ala Tyr Arg Asn Lys Thr Lys Asp Ser Pro His Val Tyr Ala Ile
 165 170 175
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 Ala Asp Ser Ala Leu Arg Glu Met Lys Arg Asp Glu Val Asn Gln Ser
 180 185 190
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 195 200 205
 Ile Ala Met Gln Tyr Leu Ala Ser Leu Gly Gly Gly Gly Ile Glu
 210 215 220
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 Tyr Glu Ile Leu Gln Thr Asn Pro Ile Leu Glu Ala Phe Gly Asn Ala
 225 230 235 240
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 Lys Thr Leu Arg Asn Asp Asn Ser Ser Arg Phe Gly Lys Leu Ile Glu
 245 250 255
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 Ile His Phe Ser Thr Thr Gly Arg Ile Cys Gly Ala Met Ile Gln Thr
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 Phe Leu Leu Glu Lys Ser Arg Val Val Gln Cys Ala Val Gly Glu Arg
 275 280 285
 Ser Tyr His Ile Phe Tyr Gln Leu Cys Ala Gly Ala Pro Ala Ser Leu
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 Arg Asp Lys Leu Asn Met Lys Lys Ala Asp Glu Tyr Lys Tyr Leu Lys
 305 310 315 320
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 Gln Ser Cys Cys Tyr Ser Ile Ala Gly Val Asp Asp Ala Gln Met Phe
 325 330 335
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 Arg Thr Val Thr Glu Ala Met Asn Ile Val His Ile Ser Lys Glu Asp
 340 345 350
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 370 375 380
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 Asp Glu Ala Ala Glu Thr Val Ala Arg Leu Leu Gly Cys Ser Ile Glu
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 5 Asn Ile Val Gln Lys Leu Thr Leu Ser Gln Ala Ile Asp Thr Arg Asp
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 10 Ala Leu Ala Lys Ser Leu Tyr Ala Ser Leu Phe Glu Trp Leu Val Glu
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 15 Gln Ile Asn Lys Ser Leu Ser Val Gly Lys Arg Arg Thr Gly Arg Ser
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 20 Ile Ser Ile Leu Asp Ile Tyr Gly Phe Glu Ser Phe Asp Arg Asn Ser
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 45 Ala Phe Ala Val Arg His Tyr Ala Gly Glu Val Ala Tyr Asp Thr Ser
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 55 Phe Leu Ala Lys Cys Lys Ser Ser Leu Pro Gln Met Phe Ala Ser Lys
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 60 Met Leu Ser Gln Ser Asp Asn Pro Leu Pro Val Pro Tyr Arg Asn Ser
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 645 650 655
 65 Leu Phe Gln Leu Met Gln Arg Leu Glu Ser Thr Thr Pro His Phe Ile
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Arg Cys Ile Lys Pro Asn Asn Leu Gln Leu Pro Ala Ile Tyr Glu Gln
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 15 Ala Arg Arg Tyr Gly Phe Leu Leu Leu Glu Asp Val Ala Ser Gln Asp
 725 730 735
 20 Pro Leu Ser Val Ser Val Ala Ile Leu His Gln Phe Asn Ile Leu Pro
 740 745 750
 25 Glu Met Tyr Gln Val Gly Tyr Thr Lys Leu Phe Phe Arg Thr Gly Gln
 755 760 765
 30 Ile Gly Lys Leu Glu Asp Thr Arg Asn Arg Thr Leu His Gly Ile Leu
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 35 Arg Val Gln Ser Cys Phe Arg Gly His Gln Ala Arg Arg His Ala Arg
 785 790 795 800
 40 Glu Arg Ile Arg Gly Val Leu Ala Leu Gln Ser Phe Ile Arg Gly Glu
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 65 Arg Glu Phe Glu Ser Lys Lys Glu Ala Glu Gly Asp Gln Ile Leu Ile
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 75 Ala Thr Val Arg Glu Lys Asp Glu Glu Asn Glu Met Leu Gln Gln Arg
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 80 Leu Gln Gln Tyr Glu Asn Arg Trp Ser Glu Tyr Glu Gln Lys Met Lys
 930 935 940

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5 Leu Ser Val Ala Lys Lys Ser Leu Ala Leu Asp Glu Thr Pro Arg Met
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10 Ser Asp Ser Ser Val Asp Gln Ser Trp Glu Ser Asn Gly Val His Ile
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15 Gly Ser Ala Ser Gln Leu Val Pro Arg Thr Val Gly Arg Glu Met Asn
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20 Ala Ser Ile Ser Val Ile Ser Arg Leu Ala Glu Glu Phe Glu Gln
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Arg Ser Gln Val Phe Ala Asp Asp Ala Lys Phe Leu Val Glu Val
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25 Lys Ser Gly Gln Ala Asp Ala Ser Leu Asn Pro Asp Met Glu Leu
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30 Arg Arg Leu Lys Gln Asn Phe Asp Ser Trp Lys Lys Asp Phe Gly
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35 Ser Arg Ile Arg Glu Thr Lys Val Ile Leu Asn Lys Leu Gly Ser
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 Val Tyr Gly Asn Pro Val Gly Ala Gly Gln Tyr Gly Gly Gly Ala Thr
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65 gcg ccc ggc gga ggc cac gga gcg atg ggg atg gga ggt cat gcc ggc 144
 Ala Pro Gly Gly Gly His Gly Ala Met Gly Met Gly Gly His Ala Gly
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	Ala Gly Ala Gly Gly Gln Phe Gln Pro Ala Arg Glu Asp Arg Lys Thr	
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	Gly Gly Ile Leu His Arg Ser Gly Ser Ser Ser Ser Ser Ser Ser	
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	Glu Asp Asp Gly Met Gly Gly Arg Arg Lys Lys Gly Ile Lys Glu Lys	
	85 90 95	
15	atc aag gag aag ctg ccc ggc ggc aac aag ggc aac aac cag cag cag	336
	Ile Lys Glu Lys Leu Pro Gly Gly Asn Lys Gly Asn Asn Gln Gln Gln	
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	Gln Gln Met Met Gly Asn Thr Gly Gly Ala Tyr Gly Gln Gln Gly His	
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	Ala Gly Met Thr Gly Ala Thr Gly Val His Gly Ala Glu Tyr Gly	
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50	Ala Pro Gly Gly Gly His Gly Ala Met Gly Met Gly Gly His Ala Gly	
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55	Ala Gly Ala Gly Gly Gln Phe Gln Pro Ala Arg Glu Asp Arg Lys Thr	
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60	Gly Gly Ile Leu His Arg Ser Gly Ser Ser Ser Ser Ser Ser Ser	
	65 70 75 80	
65	Glu Asp Asp Gly Met Gly Gly Arg Arg Lys Lys Gly Ile Lys Glu Lys	
	85 90 95	
	Ile Lys Glu Lys Leu Pro Gly Gly Asn Lys Gly Asn Asn Gln Gln Gln	
	100 105 110	

Gln Gln Met Met Gly Asn Thr Gly Gly Ala Tyr Gly Gln Gln Gly His
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Pro Gly Gln His

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 Pro Gln Val Arg Pro Gly Arg Arg Leu Arg Leu Gln Arg Val Arg Arg
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 Arg Cys Val Ala Glu Leu Ser Arg Asp Gly Gly Ser Ala Gln Arg Pro
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40 ctg gca ccg gcg ccg ctg gtg aag cag ccg gtc ctg ccg acc ttc ctc 192
 Leu Ala Pro Ala Pro Leu Val Lys Gln Pro Val Leu Pro Thr Phe Leu
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45 gtg ccg acg tcg acg cca ccc gcg ccc acg cag tcg ccg gcg ccg gcg 240
 Val Pro Thr Ser Thr Pro Pro Ala Pro Thr Gln Ser Pro Ala Pro Ala
 65 70 75 80

ccg acc ccg ccg ccg ttg ccg gac tcc ggc gtg ggg gag atc gag ccc 288
 Pro Thr Pro Pro Pro Leu Pro Asp Ser Gly Val Gly Glu Ile Glu Pro
 85 90 95

50 gat cta gaa ggt ctc aca gaa gat tcc atc gac aaa aca att ttt gtg 336
 Asp Leu Glu Gly Leu Thr Glu Asp Ser Ile Asp Lys Thr Ile Phe Val
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55 gct agt gag cag gag tct gag atc atg gat gtg aag gag caa gct caa 384
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 115 120 125

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 Ala Lys Val Thr Arg Ser Val Val Phe Val Thr Gly Glu Ala Ser Pro
 130 135 140

65 tat gca aag tca ggt gga cta gga gat gtt tgt ggt tca ctg cca att 480
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gct ctt gct ctt cgt ggt cat cgt gtg atg gtt gta atg ccg aga tac 528

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	Met	Asn	Gly	Ala	Leu	Asn	Lys	Asn	Phe	Ala	Asn	Ala	Phe	Tyr	Thr	Glu	
				180					185					190			
10	aag	cac	att	aag	att	cca	tgc	ttt	ggc	gga	gaa	cat	gaa	gtt	act	ttt	624
	Lys	His	Ile	Lys	Ile	Pro	Cys	Phe	Gly	Gly	Glu	His	Glu	Val	Thr	Phe	
			195					200					205				
15	ttt	cac	gag	tat	agg	gat	tct	gtt	gat	tgg	gtg	ttt	gtt	gat	cat	ccc	672
	Phe	His	Glu	Tyr	Arg	Asp	Ser	Val	Asp	Trp	Val	Phe	Val	Asp	His	Pro	
		210				215						220					
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	Ser	Tyr	His	Arg	Pro	Gly	Asn	Leu	Tyr	Gly	Asp	Asn	Phe	Gly	Ala	Phe	
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	Gly	Asp	Asn	Gln	Phe	Arg	Tyr	Thr	Leu	Leu	Cys	Tyr	Ala	Ala	Cys	Glu	
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	Ala	Pro	Leu	Ile	Leu	Glu	Leu	Gly	Gly	Tyr	Ile	Tyr	Gly	Gln	Lys	Cys	
			260					265					270				
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	Met	Phe	Val	Val	Asn	Asp	Trp	His	Ala	Ser	Leu	Val	Pro	Val	Leu	Leu	
		275						280					285				
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	Ala	Ala	Lys	Tyr	Arg	Pro	Tyr	Gly	Val	Tyr	Arg	Asp	Ala	Arg	Ser	Val	
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	Leu	Val	Ile	His	Asn	Leu	Ala	His	Gln	Gly	Val	Glu	Pro	Ala	Ser	Thr	
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	Tyr	Pro	Asp	Leu	Gly	Leu	Pro	Pro	Glu	Trp	Tyr	Gly	Ala	Leu	Glu	Trp	
				325						330					335		
55	gtg	ttt	cca	gag	tgg	gca	agg	cgg	cat	gcc	ctt	gac	aag	ggg	gag	gca	1056
	Val	Phe	Pro	Glu	Trp	Ala	Arg	Arg	His	Ala	Leu	Asp	Lys	Gly	Glu	Ala	
			340					345						350			
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	Val	Asn	Phe	Leu	Lys	Gly	Ala	Val	Val	Thr	Ala	Asp	Arg	Ile	Val	Thr	
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	Val	Ser	Gln	Gly	Tyr	Ser	Trp	Glu	Val	Thr	Thr	Ala	Glu	Gly	Gly	Gln	
		370					375					380					
70	ggc	ctc	aat	gag	ctc	tta	agc	tcc	cgg	aag	agt	gta	ttg	aat	gga	att	1200
	Gly	Leu	Asn	Glu	Leu	Leu	Ser	Ser	Arg	Lys	Ser	Val	Leu	Asn	Gly	Ile	
		385				390					395					400	
75	gta	aat	gga	att	gac	att	aat	gat	tgg	aac	cca	tcc	aca	gac	aag	ttt	1248
	Val	Asn	Gly	Ile	Asp	Ile	Asn	Asp	Trp	Asn	Pro	Ser	Thr	Asp	Lys	Phe	
				405					410						415		
80	ctc	cct	tat	cat	tat	tct	gtt	gat	gac	ctg	tcc	gga	aag	gcc	aag	tgt	1296
	Leu	Pro	Tyr	His	Tyr	Ser	Val	Asp	Asp	Leu	Ser	Gly	Lys	Ala	Lys	Cys	
			420					425						430			
85	aaa	gct	gaa	ttg	cag	aag	gag	ctg	ggg	tta	cct	ata	agg	ccc	gat	gtg	1344

	Lys	Ala	Glu	Leu	Gln	Lys	Glu	Leu	Gly	Leu	Pro	Ile	Arg	Pro	Asp	Val	
			435					440					445				
5	cct	ctg	att	ggc	ttt	att	gga	aga	ttg	gac	tat	caa	aaa	ggc	att	gat	1392
	Pro	Leu	Ile	Gly	Phe	Ile	Gly	Arg	Leu	Asp	Tyr	Gln	Lys	Gly	Ile	Asp	
		450					455					460					
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	Leu	Ile	Lys	Leu	Ala	Ile	Pro	Asp	Leu	Met	Arg	Asp	Asn	Ile	Gln	Phe	
	465					470					475					480	
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	Val	Met	Leu	Gly	Ser	Gly	Asp	Pro	Gly	Phe	Glu	Gly	Trp	Met	Arg	Ser	
				485					490						495		
20	aca	gaa	tca	ggg	tac	agg	gat	aaa	ttt	cgt	gga	tgg	gtt	gga	ttt	agt	1536
	Thr	Glu	Ser	Gly	Tyr	Arg	Asp	Lys	Phe	Arg	Gly	Trp	Val	Gly	Phe	Ser	
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	Val	Pro	Val	Ser	His	Arg	Ile	Thr	Ala	Gly	Cys	Asp	Ile	Leu	Leu	Met	
		515					520						525				
30	cca	tcc	aga	ttc	gaa	cct	tgt	ggc	ctc	aat	cag	cta	tat	gct	atg	caa	1632
	Pro	Ser	Arg	Phe	Glu	Pro	Cys	Gly	Leu	Asn	Gln	Leu	Tyr	Ala	Met	Gln	
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	Tyr	Gly	Thr	Val	Pro	Val	Val	His	Gly	Thr	Gly	Gly	Leu	Arg	Asp	Thr	
	545				550				555						560		
40	gtg	gag	aat	ttt	aac	ccg	ttt	gct	gag	aaa	gga	gag	cag	ggg	aca	ggg	1728
	Val	Glu	Asn	Phe	Asn	Pro	Phe	Ala	Glu	Lys	Gly	Glu	Gln	Gly	Thr	Gly	
			565					570						575			
45	tgg	gca	ttc	tgc	cca	cta	acc	att	gaa	aaa	aat	gct	gtg	ggc	att	gcg	1776
	Trp	Ala	Phe	Ser	Pro	Leu	Thr	Ile	Glu	Lys	Asn	Ala	Val	Gly	Ile	Ala	
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50	gat	ggc	aat	ttc	gac	ata	cag	gga	aca	caa	gtc	ctc	ttg	gga	ggg	tct	1824
	Asp	Gly	Asn	Phe	Asp	Ile	Gln	Gly	Thr	Gln	Val	Leu	Leu	Gly	Gly	Ser	
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	Asn	Glu	Ala	Arg	His	Val	Lys	Arg	Leu	Tyr	Met	Gly	Pro	Cys	Arg	Leu	
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	Arg	Cys	Val	Ala	Glu	Leu	Ser	Arg	Asp	Gly	Gly	Ser	Ala	Gln	Arg	Pro	

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10	Val Pro Thr Ser Thr Pro Pro Ala Pro Thr Gln Ser Pro Ala Pro Ala 65 70 75 80		
15	Pro Thr Pro Pro Pro Leu Pro Asp Ser Gly Val Gly Glu Ile Glu Pro 85 90 95		
20	Asp Leu Glu Gly Leu Thr Glu Asp Ser Ile Asp Lys Thr Ile Phe Val 100 105 110		
25	Ala Ser Glu Gln Glu Ser Glu Ile Met Asp Val Lys Glu Gln Ala Gln 115 120 125		
30	Ala Lys Val Thr Arg Ser Val Val Phe Val Thr Gly Glu Ala Ser Pro 130 135 140		
35	Tyr Ala Lys Ser Gly Gly Leu Gly Asp Val Cys Gly Ser Leu Pro Ile 145 150 155 160		
40	Ala Leu Ala Leu Arg Gly His Arg Val Met Val Val Met Pro Arg Tyr 165 170 175		
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55	Phe His Glu Tyr Arg Asp Ser Val Asp Trp Val Phe Val Asp His Pro 210 215 220		
60	Ser Tyr His Arg Pro Gly Asn Leu Tyr Gly Asp Asn Phe Gly Ala Phe 225 230 235 240		
65	Gly Asp Asn Gln Phe Arg Tyr Thr Leu Leu Cys Tyr Ala Ala Cys Glu 245 250 255		
	Ala Pro Leu Ile Leu Glu Leu Gly Gly Tyr Ile Tyr Gly Gln Lys Cys 260 265 270		
	Met Phe Val Val Asn Asp Trp His Ala Ser Leu Val Pro Val Leu Leu 275 280 285		
	Ala Ala Lys Tyr Arg Pro Tyr Gly Val Tyr Arg Asp Ala Arg Ser Val 290 295 300		
	Leu Val Ile His Asn Leu Ala His Gln Gly Val Glu Pro Ala Ser Thr		

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5	Tyr Pro Asp Leu Gly Leu Pro Pro Glu Trp Tyr Gly Ala Leu Glu Trp	325	330	335
10	Val Phe Pro Glu Trp Ala Arg Arg His Ala Leu Asp Lys Gly Glu Ala	340	345	350
15	Val Asn Phe Leu Lys Gly Ala Val Val Thr Ala Asp Arg Ile Val Thr	355	360	365
20	Val Ser Gln Gly Tyr Ser Trp Glu Val Thr Thr Ala Glu Gly Gly Gln	370	375	380
25	Gly Leu Asn Glu Leu Leu Ser Ser Arg Lys Ser Val Leu Asn Gly Ile	385	390	395
30	Val Asn Gly Ile Asp Ile Asn Asp Trp Asn Pro Ser Thr Asp Lys Phe	405	410	415
35	Leu Pro Tyr His Tyr Ser Val Asp Asp Leu Ser Gly Lys Ala Lys Cys	420	425	430
40	Lys Ala Glu Leu Gln Lys Glu Leu Gly Leu Pro Ile Arg Pro Asp Val	435	440	445
45	Pro Leu Ile Gly Phe Ile Gly Arg Leu Asp Tyr Gln Lys Gly Ile Asp	450	455	460
50	Leu Ile Lys Leu Ala Ile Pro Asp Leu Met Arg Asp Asn Ile Gln Phe	465	470	475
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60	Thr Glu Ser Gly Tyr Arg Asp Lys Phe Arg Gly Trp Val Gly Phe Ser	500	505	510
65	Val Pro Val Ser His Arg Ile Thr Ala Gly Cys Asp Ile Leu Leu Met	515	520	525
70	Pro Ser Arg Phe Glu Pro Cys Gly Leu Asn Gln Leu Tyr Ala Met Gln	530	535	540
75	Tyr Gly Thr Val Pro Val Val His Gly Thr Gly Gly Leu Arg Asp Thr	545	550	555
80	Val Glu Asn Phe Asn Pro Phe Ala Glu Lys Gly Glu Gln Gly Thr Gly	565	570	575
85	Trp Ala Phe Ser Pro Leu Thr Ile Glu Lys Asn Ala Val Gly Ile Ala			

	580	585	590	
5	Asp Gly Asn Phe Asp Ile Gln Gly Thr Gln Val Leu Leu Gly Gly Ser	595	600	605
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	Phe Val Asp Asp Phe Glu Leu Ala Ala Glu Leu Tyr Thr Gln Ala			
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	Ile Glu Ala Ser Pro Ala Thr Ala Glu Leu Tyr Ala Asp Arg Ala Gln			
	35 40 45			
45	gcc cat atc aag cta ggc aac tac act gag gct gta gct gat gct aac			192
	Ala His Ile Lys Leu Gly Asn Tyr Thr Glu Ala Val Ala Asp Ala Asn			
	50 55 60			
50	aag gcc att gaa ctt gac cca tca atg cac aag gct tat ctt cgt aaa			240
	Lys Ala Ile Glu Leu Asp Pro Ser Met His Lys Ala Tyr Leu Arg Lys			
	65 70 75 80			
55	ggc gct gca tgt ata cga ctg gag gag tat caa act gca aaa gca gct			288
	Gly Ala Ala Cys Ile Arg Leu Glu Glu Tyr Gln Thr Ala Lys Ala Ala			
	85 90 95			
60	ctt gaa ttg ggt tac tcg ttc gca tct ggt gac tca agg ttt act cgc			336
	Leu Glu Leu Gly Tyr Ser Phe Ala Ser Gly Asp Ser Arg Phe Thr Arg			
	100 105 110			
65	cta atg aag gag tgt gat gag cgc att gct gag gag ctt act gaa gtc			384
	Leu Met Lys Glu Cys Asp Glu Arg Ile Ala Glu Glu Leu Thr Glu Val			
	115 120 125			
70	cct gtt aag aag gct gaa gat gga gca gct gcc ccc tct gtt gct tct			432
	Pro Val Lys Lys Ala Glu Asp Gly Ala Ala Ala Pro Ser Val Ala Ser			
	130 135 140			
75	ttt gtt gag gaa aag gat gat gct gca aac atg gat aat aca cca cca			480
	Phe Val Glu Glu Lys Asp Asp Ala Ala Asn Met Asp Asn Thr Pro Pro			
	145 150 155 160			
80	atg gta gaa gtg aag cca aaa tac agg cac gac ttc tac aac agt gct			528
	Met Val Glu Val Lys Pro Lys Tyr Arg His Asp Phe Tyr Asn Ser Ala			

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15	cct gga gag gag ccg tac cat ttt cag cct cgt ctg ttt tct aag atc Pro Gly Glu Glu Pro Tyr His Phe Gln Pro Arg Leu Phe Ser Lys Ile 210 215 220	672		
20	atc cct gag aaa agc aga tac caa gtg cta tcc acg aag gtt gaa ata Ile Pro Glu Lys Ser Arg Tyr Gln Val Leu Ser Thr Lys Val Glu Ile 225 230 235 240	720		
25	aga ctg gct aaa gct gaa cag att aca tgg acc tca ctt gat tat gat Arg Leu Ala Lys Ala Glu Gln Ile Thr Trp Thr Ser Leu Asp Tyr Asp 245 250 255	768		
30	aaa aaa cca aag gct gtt cca caa aag ata atc cct cca gct gaa tcg Lys Lys Pro Lys Ala Val Pro Gln Lys Ile Ile Pro Pro Ala Glu Ser 260 265 270	816		
35	gcc cag agg cca tca tat cct tcc tca aaa tcc aag aaa gac tgg gat Ala Gln Arg Pro Ser Tyr Pro Ser Ser Lys Ser Lys Lys Asp Trp Asp 275 280 285	864		
40	aaa ctg gaa gct gaa gtt aaa aag gag gag aag gag gag aag ctt gaa Lys Leu Glu Ala Glu Val Lys Lys Glu Glu Lys Glu Glu Lys Leu Glu 290 295 300	912		
45	ggc gat gct gca ttg aac aaa ttt ttc cgt gac atc tac agt gat gct Gly Asp Ala Ala Leu Asn Lys Phe Phe Arg Asp Ile Tyr Ser Asp Ala 305 310 315 320	960		
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 15 Leu Glu Leu Gly Tyr Ser Phe Ala Ser Gly Asp Ser Arg Phe Thr Arg
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 20 Leu Met Lys Glu Cys Asp Glu Arg Ile Ala Glu Glu Leu Thr Glu Val
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 Pro Val Lys Lys Ala Glu Asp Gly Ala Ala Ala Pro Ser Val Ala Ser
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 Phe Val Glu Glu Lys Asp Asp Ala Ala Asn Met Asp Asn Thr Pro Pro
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 Met Val Glu Val Lys Pro Lys Tyr Arg His Asp Phe Tyr Asn Ser Ala
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 40 Val Val Val Asp Phe Gly Glu Gln Met Leu Ser Val Ser Ile Glu Val
 195 200 205

 Pro Gly Glu Glu Pro Tyr His Phe Gln Pro Arg Leu Phe Ser Lys Ile
 210 215 220
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 Ile Pro Glu Lys Ser Arg Tyr Gln Val Leu Ser Thr Lys Val Glu Ile
 225 230 235 240
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 Arg Leu Ala Lys Ala Glu Gln Ile Thr Trp Thr Ser Leu Asp Tyr Asp
 245 250 255

 55 Lys Lys Pro Lys Ala Val Pro Gln Lys Ile Ile Pro Pro Ala Glu Ser
 260 265 270

 60 Ala Gln Arg Pro Ser Tyr Pro Ser Ser Lys Ser Lys Lys Asp Trp Asp
 275 280 285

 Lys Leu Glu Ala Glu Val Lys Lys Glu Glu Lys Glu Glu Lys Leu Glu
 290 295 300
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 Gly Asp Ala Ala Leu Asn Lys Phe Phe Arg Asp Ile Tyr Ser Asp Ala
 305 310 315 320

Asp Glu Asp Met Arg Arg Ala Met Met Lys Ser Phe Val Glu Ser Asn
 325 330 335
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 gag aac acc gac tac ctg tgc aac atg gac ccg tac gcg gtt ctc aaa 96
 Glu Asn Thr Asp Tyr Leu Cys Asn Met Asp Pro Tyr Ala Val Leu Lys
 20 25 30
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 Cys Arg Ser Gln Glu Gln Lys Ser Ser Val Ala Ser Gly Lys Gly Ser
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 gac cct gaa tgg aac gaa acc ttt atg ttc agc gtc act cac aac gct 192
 Asp Pro Glu Trp Asn Glu Thr Phe Met Phe Ser Val Thr His Asn Ala
 50 55 60
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 aca gag ctc atc atc aag ttg atg gac agt gac agt ggc acg gat gat 240
 Thr Glu Leu Ile Ile Lys Leu Met Asp Ser Asp Ser Gly Thr Asp Asp
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 gat ttt gtt gga gaa gca acg att tct ttg gaa gca atc tat aca gaa 288
 Asp Phe Val Gly Glu Ala Thr Ile Ser Leu Glu Ala Ile Tyr Thr Glu
 85 90 95
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 gga agc ata ccc cca act gtt tat aat gtt gtg aaa gaa gaa gaa tac 336
 Gly Ser Ile Pro Pro Thr Val Tyr Asn Val Val Lys Glu Glu Glu Tyr
 100 105 110
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 cgt gga gaa atc aaa gtg ggc ctg acg ttc act cca gag gat gat cgc 384
 Arg Gly Glu Ile Lys Val Gly Leu Thr Phe Thr Pro Glu Asp Asp Arg
 115 120 125
 65
 gat cgg ggt tta tct gag gaa gac att ggt gga tgg aag cag tca tct 432
 Asp Arg Gly Leu Ser Glu Glu Asp Ile Gly Gly Trp Lys Gln Ser Ser
 130 135 140
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15 Cys Arg Ser Gln Glu Gln Lys Ser Ser Val Ala Ser Gly Lys Gly Ser
35 40 45

20 Asp Pro Glu Trp Asn Glu Thr Phe Met Phe Ser Val Thr His Asn Ala
50 55 60

25 Thr Glu Leu Ile Ile Lys Leu Met Asp Ser Asp Ser Gly Thr Asp Asp
65 70 75 80

30 Asp Phe Val Gly Glu Ala Thr Ile Ser Leu Glu Ala Ile Tyr Thr Glu
85 90 95

35 Gly Ser Ile Pro Pro Thr Val Tyr Asn Val Val Lys Glu Glu Glu Tyr
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Tyr Leu Glu Ser Tyr Ile Ser Thr Ile Gly Val Asp Phe Lys Ile Arg
35 40 45

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Thr Val Glu Gln Asp Gly Lys Thr Ile Lys Leu Gln Ile Trp Asp Thr
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Ala His Gly Ile Ile Val Val Tyr Asp Val Thr Asp Gln Glu Ser Phe				
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aac aat gtc aag cag tgg ctg aat gaa att gat agg tat gct agt gaa				336
Asn Asn Val Lys Gln Trp Leu Asn Glu Ile Asp Arg Tyr Ala Ser Glu				
10	100	105	110	
aat gtg aac aag ctc ttg gtg ggg aac aag tgt gat cta gct gag aac				384
Asn Val Asn Lys Leu Leu Val Ggg Asn Lys Cys Asp Leu Ala Glu Asn				
115	120		125	
aga gtg gtt tct tat gag gct ggc aag gcc ctt gct gat gag att gga				432
Arg Val Val Ser Tyr Glu Ala Gly Lys Ala Leu Ala Asp Glu Ile Gly				
130	135		140	
ata cca ttc ctg gag acc agt gcg aag gat gca aca aat gtg gag aag				480
Ile Pro Phe Leu Glu Thr Ser Ala Lys Asp Ala Thr Asn Val Glu Lys				
145	150		155	160
gca ttc atg acc atg gca gga gag ata aag aac agg atg gca agc caa				528
Ala Phe Met Thr Met Ala Gly Glu Ile Lys Asn Arg Met Ala Ser Gln				
165		170		175
ggc cgt aca aat gca agc aag cct gca acc gtg caa atg ccg agg caa				576
Gly Arg Thr Asn Ala Ser Lys Pro Ala Thr Val Gln Met Pro Arg Gln				
180		185		190
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Tyr Leu Glu Ser Tyr Ile Ser Thr Ile Gly Val Asp Phe Lys Ile Arg				
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Thr Val Glu Gln Asp Gly Lys Thr Ile Lys Leu Gln Ile Trp Asp Thr				
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Ala Gly Gln Glu Arg Phe Arg Thr Ile Thr Ser Ser Tyr Tyr Arg Gly				
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Ala His Gly Ile Ile Val Val Tyr Asp Val Thr Asp Gln Glu Ser Phe				
	85		90	95
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Asn Asn Val Lys Gln Trp Leu Asn Glu Ile Asp Arg Tyr Ala Ser Glu				
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Asn Val Asn Lys Leu Leu Val Gly Asn Lys Cys Asp Leu Ala Glu Asn
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 Arg Val Val Ser Tyr Glu Ala Gly Lys Ala Leu Ala Asp Glu Ile Gly
 130 135 140
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 Ile Pro Phe Leu Glu Thr Ser Ala Lys Asp Ala Thr Asn Val Glu Lys
 145 150 155 160
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 Ala Phe Met Thr Met Ala Gly Glu Ile Lys Asn Arg Met Ala Ser Gln
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 Met His Met Met Arg Arg Leu Lys Ser Ile Ala Ser Gly Arg Ser Ser
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 gtc tcc gat ccg ggt ggt gat tct ggc acc aaa aga cca aaa ttc gat 96
 Val Ser Asp Pro Gly Gly Asp Ser Gly Thr Lys Arg Pro Lys Phe Asp
 20 25 30
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 cag gat gga gca gga gat ata gtc att gag cca cat cta act gat gac 144
 Gln Asp Gly Ala Gly Asp Ile Val Ile Glu Pro His Leu Thr Asp Asp
 35 40 45
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 aaa cct atg cgc gta gac caa gaa tca tct tca tct cat aga gat gct 192
 Lys Pro Met Arg Val Asp Gln Glu Ser Ser Ser Ser His Arg Asp Ala
 50 55 60
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 gag gca agc aca tct act agt aag aat cct ggt aga act gaa gaa gca 240
 Glu Ala Ser Thr Ser Thr Ser Lys Asn Pro Gly Arg Thr Glu Glu Ala
 65 70 75 80
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 ggt gcg gat att ctt cca aaa gaa atg aat gag atg aca ata agt gat 288
 Gly Ala Asp Ile Leu Pro Lys Glu Met Asn Glu Met Thr Ile Ser Asp
 85 90 95
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 gat aaa gtt gat ggc cat aat gat aag gaa tct gaa ggt gtt att gtt 336
 Asp Lys Val Asp Gly His Asn Asp Lys Glu Ser Glu Gly Val Ile Val
 100 105 110
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 aat gca aat gga aca gaa aca ggt cag att att gtg aca tca att gga 384
 Asn Ala Asn Gly Thr Glu Thr Gly Gln Ile Ile Val Thr Ser Ile Gly
 115 120 125

	ggt caa aat ggg aag cca aag cag aag gta tca tac atg gca gaa cgt	432
	Gly Gln Asn Gly Lys Pro Lys Gln Lys Val Ser Tyr Met Ala Glu Arg	
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	Val Val Gly Thr Gly Ser Phe Gly Val Val Phe Gln Ala Lys Cys Leu	
	145 150 155 160	
10	gaa act gga gag act gtt gcc att aag aag gtt ctg caa gat aaa aga	528
	Glu Thr Gly Glu Thr Val Ala Ile Lys Lys Val Leu Gln Asp Lys Arg	
	165 170 175	
15	tat aag aac aga gag ctg caa aca atg caa ctg ctt gac cat cct aat	576
	Tyr Lys Asn Arg Glu Leu Gln Thr Met Gln Leu Leu Asp His Pro Asn	
	180 185 190	
20	gtg gtc cag cta aag cat cac ttc ttt tgc acg act gag agg ggt gaa	624
	Val Val Gln Leu Lys His His Phe Phe Ser Thr Thr Glu Arg Gly Glu	
	195 200 205	
25	gtt tac ctg aac ctt gta ctt gaa tat gtc tca gag aca gtt tat cgt	672
	Val Tyr Leu Asn Leu Val Leu Glu Tyr Val Ser Glu Thr Val Tyr Arg	
	210 215 220	
30	gtt gct aaa tac tac aat cgg atg aac cag cgt gtg ccc ata ttg cat	720
	Val Ala Lys Tyr Tyr Asn Arg Met Asn Gln Arg Val Pro Ile Leu His	
	225 230 235 240	
35	ggt aag ctg tat gca tat cag atg tgc cgt gcc ctt gca tat atc cat	768
	Val Lys Leu Tyr Ala Tyr Gln Met Cys Arg Ala Leu Ala Tyr Ile His	
	245 250 255	
40	cgt gtt gtt ggt gtc tgc cat cga gat att aaa cct caa aat cta ctg	816
	Arg Val Val Gly Val Cys His Arg Asp Ile Lys Pro Gln Asn Leu Leu	
	260 265 270	
45	gtc aat cct cat aca cat caa ctg aag ctt tgt gat ttt gga agt gct	864
	Val Asn Pro His Thr His Gln Leu Lys Leu Cys Asp Phe Gly Ser Ala	
	275 280 285	
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	Lys Lys Leu Val Pro Gly Glu Pro Asn Ile Ser Tyr Ile Cys Ser Arg	
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	Tyr Tyr Arg Ala Pro Glu Leu Ile Phe Gly Ala Thr Glu Tyr Thr Thr	
	305 310 315 320	
60	gca att gat atc tgg tct gtt ggt tgt gta cta gct gag ctt ctg att	1008
	Ala Ile Asp Ile Trp Ser Val Gly Cys Val Leu Ala Glu Leu Leu Ile	
	325 330 335	
65	ggt cag cct ctg ttc cct gga gaa agt ggt gtt gat caa ctg gtg gaa	1056
	Gly Gln Pro Leu Phe Pro Gly Glu Ser Gly Val Asp Gln Leu Val Glu	
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70	ata ata aag att ttg ggt aca cca act aga gaa gaa atc agg tgc atg	1104
	Ile Ile Lys Ile Leu Gly Thr Pro Thr Arg Glu Glu Ile Arg Cys Met	
	355 360 365	
75	aat cca aac tat tct gaa ttc aaa ttc cct cag ata aaa gct cat cca	1152
	Asn Pro Asn Tyr Ser Glu Phe Lys Phe Pro Gln Ile Lys Ala His Pro	
	370 375 380	
80	tgg cac aag ctt ttt ggt aag cgc atg cca cct gaa gct gtt gat ctt	1200
	Trp His Lys Leu Phe Gly Lys Arg Met Pro Pro Glu Ala Val Asp Leu	
	385 390 395 400	

244

Glu Thr Gly Glu Thr Val Ala Ile Lys Lys Val Leu Gln Asp Lys Arg
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 5 Tyr Lys Asn Arg Glu Leu Gln Thr Met Gln Leu Leu Asp His Pro Asn
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 10 Val Val Gln Leu Lys His His Phe Phe Ser Thr Thr Glu Arg Gly Glu
 195 200 205
 15 Val Tyr Leu Asn Leu Val Leu Glu Tyr Val Ser Glu Thr Val Tyr Arg
 210 215 220
 20 Val Ala Lys Tyr Tyr Asn Arg Met Asn Gln Arg Val Pro Ile Leu His
 225 230 235 240
 Val Lys Leu Tyr Ala Tyr Gln Met Cys Arg Ala Leu Ala Tyr Ile His
 245 250 255
 25 Arg Val Val Gly Val Cys His Arg Asp Ile Lys Pro Gln Asn Leu Leu
 260 265 270
 30 Val Asn Pro His Thr His Gln Leu Lys Leu Cys Asp Phe Gly Ser Ala
 275 280 285
 35 Lys Lys Leu Val Pro Gly Glu Pro Asn Ile Ser Tyr Ile Cys Ser Arg
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 Tyr Tyr Arg Ala Pro Glu Leu Ile Phe Gly Ala Thr Glu Tyr Thr Thr
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 40 Ala Ile Asp Ile Trp Ser Val Gly Cys Val Leu Ala Glu Leu Leu Ile
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 45 Gly Gln Pro Leu Phe Pro Gly Glu Ser Gly Val Asp Gln Leu Val Glu
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 50 Ile Ile Lys Ile Leu Gly Thr Pro Thr Arg Glu Glu Ile Arg Cys Met
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 55 Asn Pro Asn Tyr Ser Glu Phe Lys Phe Pro Gln Ile Lys Ala His Pro
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 Trp His Lys Leu Phe Gly Lys Arg Met Pro Pro Glu Ala Val Asp Leu
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 60 Val Ser Arg Leu Leu Gln Tyr Ser Pro Asn Leu Arg Cys Thr Ala Val
 405 410 415
 65 Asp Ala Cys Ala His Pro Phe Phe Asp Glu Leu Arg Asp Pro Lys Thr
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Cys Leu Ser Asn Gly Arg Ser Leu Pro Pro Leu Phe Asp Phe Ser Ala
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 Gly Val Arg Phe Ser Asp Val Pro Val Asn Pro Gly Leu Ser Phe His
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 ttc atc ctc gcc ttc gcc atc gac tac ttc atg gcg acg cag tcc tcc 144
 Phe Ile Leu Ala Phe Ala Ile Asp Tyr Phe Met Ala Thr Gln Ser Ser
 35 40 45

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 aag ccg gcg cca gcc aac ggc gtg ttc gcc ccg tac tgg gac acg gcc 192
 Lys Pro Ala Pro Ala Asn Gly Val Phe Ala Pro Tyr Trp Asp Thr Ala
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 Asn Leu Ser Pro Ala Ala Val Ala Ala Lys Ala Ala His Pro Asn
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 ctc agc gtc atc ctc gcc ctc ggc ggc gac acc gtc cag aac acc ggc 288
 Leu Ser Val Ile Leu Ala Leu Gly Gly Asp Thr Val Gln Asn Thr Gly
 85 90 95

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 gtc aac gcc acg ttc gcg ccg acg tcc gtc gac gcg tgg gtg cgc 336
 Val Asn Ala Thr Phe Ala Pro Thr Ser Ser Val Asp Ala Trp Val Arg
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 Asn Ala Ala Asp Ser Val Ser Gly Leu Ile Asp Ala Tyr Gly Leu Asp
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 Gly Val Asp Val Asp Tyr Glu His Phe Ala Ala Gly Val Asp Thr Phe
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 Val Glu Cys Ile Gly Arg Leu Leu Thr Glu Leu Lys Ala Arg His Pro
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 aac atc gcc acc tcc atc gcg ccg ttc gag cac ccc gtg gtg cag cgc 528
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 165 170 175

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	Tyr Tyr Gln Pro Leu Trp Arg Arg Tyr Ala Gly Val Ile Asp Tyr Val	
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	Asn Phe Gln Phe Tyr Gly Tyr Gly Ala Asn Thr Asp Val Ala Thr Tyr	
	195 200 205	
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	Val Met Phe Tyr Asp Glu Gln Ala Ala Asn Tyr Pro Gly Ser Lys Leu	
	210 215 220	
15	ctc gcc agc ttc aag acc ggg aac gtc acc ggg ctg ctc tcg ccg gag	720
	Leu Ala Ser Phe Lys Thr Gly Asn Val Thr Gly Leu Leu Ser Pro Glu	
	225 230 235 240	
20	cag ggg atc gcc ggc gcg aag gag ttg cag cgg cag ggg aag ctg ccg	768
	Gln Gly Ile Ala Gly Ala Lys Glu Leu Gln Arg Gln Gly Lys Leu Pro	
	245 250 255	
25	ggg ttg ttc atc tgg tca gcg gat agc tcc atg gtc agc agc tac aag	816
	Gly Leu Phe Ile Trp Ser Ala Asp Ser Ser Met Val Ser Ser Tyr Lys	
	260 265 270	
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50	Lys Pro Ala Pro Ala Asn Gly Val Phe Ala Pro Tyr Trp Asp Thr Ala	
	50 55 60	
55	Asn Leu Ser Pro Ala Ala Val Ala Ala Ala Lys Ala Ala His Pro Asn	
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	85 90 95	
65	Val Asn Ala Thr Phe Ala Pro Thr Ser Ser Val Asp Ala Trp Val Arg	
	100 105 110	
65	Asn Ala Ala Asp Ser Val Ser Gly Leu Ile Asp Ala Tyr Gly Leu Asp	
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Gly Val Asp Val Asp Tyr Glu His Phe Ala Ala Gly Val Asp Thr Phe
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5 Val Glu Cys Ile Gly Arg Leu Leu Thr Glu Leu Lys Ala Arg His Pro
 145 150 155 160

10 Asn Ile Ala Thr Ser Ile Ala Pro Phe Glu His Pro Val Val Gln Arg
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Tyr Tyr Gln Pro Leu Trp Arg Arg Tyr Ala Gly Val Ile Asp Tyr Val
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15 Asn Phe Gln Phe Tyr Gly Tyr Gly Ala Asn Thr Asp Val Ala Thr Tyr
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20 Val Met Phe Tyr Asp Glu Gln Ala Ala Asn Tyr Pro Gly Ser Lys Leu
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25 Leu Ala Ser Phe Lys Thr Gly Asn Val Thr Gly Leu Leu Ser Pro Glu
 225 230 235 240

30 Gln Gly Ile Ala Gly Ala Lys Glu Leu Gln Arg Gln Gly Lys Leu Pro
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 Thr Val Gly Pro Arg Gly Pro Ile Leu Leu Glu Asp Tyr His Leu Ile
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 Glu Lys Val Ala His Phe Ala Arg Glu Arg Ile Pro Glu Arg Val Val
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cac gcc cgc ggc gcc tcc gcc aag ggc ttc ttc gag tgc acc cac gac 240

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	Val	Thr	Asp	Ile	Thr	Cys	Ala	Asp	Phe	Leu	Arg	Ser	Pro	Gly	Ala	Gln	
					85					90					95		
10	acc	ccc	gtc	atc	gtc	cgc	ttc	tcc	acc	gtc	atc	cac	gag	cgc	ggc	agc	336
	Thr	Pro	Val	Ile	Val	Arg	Phe	Ser	Thr	Val	Ile	His	Glu	Arg	Gly	Ser	
					100					105					110		
15	ccg	gag	acg	atc	cgc	gac	ccg	cgc	ggg	ttc	gcc	gtc	aag	ttc	tac	acc	384
	Pro	Glu	Thr	Ile	Arg	Asp	Pro	Arg	Gly	Phe	Ala	Val	Lys	Phe	Tyr	Thr	
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20	cgc	gag	ggc	aac	tgg	gac	ctc	ctc	ggc	aac	aac	ttc	ccc	gtc	ttc	ttc	432
	Arg	Glu	Gly	Asn	Trp	Asp	Leu	Leu	Gly	Asn	Asn	Phe	Pro	Val	Phe	Phe	
			130						135					140			
25	atc	cgc	gac	ggc	atc	aag	ttc	ccc	gac	gtc	atc	cac	gcc	ttc	aag	ccc	480
	Ile	Arg	Asp	Gly	Ile	Lys	Phe	Pro	Asp	Val	Ile	His	Ala	Phe	Lys	Pro	
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	Asn	Pro	Arg	Ser	His	Val	Gln	Glu	Tyr	Trp	Arg	Val	Phe	Asp	Phe	Leu	
					165					170					175		
35	tcc	cac	cac	ccc	gag	agc	ctc	cac	acc	ttc	ttc	ttc	ctc	ttc	gac	gac	576
	Ser	His	His	Pro	Glu	Ser	Leu	His	Thr	Phe	Phe	Phe	Leu	Phe	Asp	Asp	
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	Val	Gly	Ile	Pro	Thr	Asp	Tyr	Arg	His	Met	Asp	Gly	Phe	Gly	Val	Asn	
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	Thr	Tyr	Thr	Phe	Val	Thr	Arg	Asp	Ala	Lys	Ala	Arg	Tyr	Val	Lys	Phe	
			210					215					220				
50	cac	tgg	aag	ccc	acc	tgc	ggc	gtc	agc	tgc	ttg	atg	gac	gac	gag	gcc	720
	His	Trp	Lys	Pro	Thr	Cys	Gly	Val	Ser	Cys	Leu	Met	Asp	Asp	Glu	Ala	
						230					235					240	
55	acg	ctc	gtc	ggc	ggc	aag	aac	cac	agc	cac	gcc	acc	cag	gac	ctc	tac	768
	Thr	Leu	Val	Gly	Gly	Lys	Asn	His	Ser	His	Ala	Thr	Gln	Asp	Leu	Tyr	
					245					250					255		
60	gac	tcc	atc	gcc	gcc	ggc	aac	ttc	ccc	gag	tgg	aag	ctg	ttc	gtc	cag	816
	Asp	Ser	Ile	Ala	Ala	Gly	Asn	Phe	Pro	Glu	Trp	Lys	Leu	Phe	Val	Gln	
				260						265					270		
65	gtg	atc	gac	ccg	gag	gag	gag	gag	agg	ttc	gac	ttc	gac	ccg	ctg	gat	864
	Val	Ile	Asp	Pro	Glu	Glu	Glu	Glu	Arg	Phe	Asp	Phe	Asp	Pro	Leu	Asp	
			275					280					285				
70	gac	acc	aag	aca	tgg	ccg	gag	gac	gag	gtg	ccg	ctc	cgg	ccc	gtg	ggg	912
	Asp	Thr	Lys	Thr	Trp	Pro	Glu	Asp	Glu	Val	Pro	Leu	Arg	Pro	Val	Gly	
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	Arg	Leu	Val	Leu	Asn	Arg	Asn	Val	Asp	Asn	Phe	Phe	Asn	Glu	Asn	Glu	
					310						315					320	
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	Gln	Leu	Ala	Phe	Gly	Pro	Gly	Leu	Val	Val	Pro	Gly	Ile	Tyr	Tyr	Ser	
					325					330					335		
85	gac	gac	aag	atg	ctg	cag	tgc	agg	gtg	ttc	gcg	tac	gcc	gac	acg	cag	1056

	Asp	Asp	Lys	Met	Leu	Gln	Cys	Arg	Val	Phe	Ala	Tyr	Ala	Asp	Thr	Gln	
				340					345					350			
5	cgc	tac	agg	ctg	ggg	cca	aac	tac	ctg	atg	ctg	ccg	gtg	aac	gcg	ccc	1104
	Arg	Tyr	Arg	Leu	Gly	Pro	Asn	Tyr	Leu	Met	Leu	Pro	Val	Asn	Ala	Pro	
			355					360					365				
10	aag	tgc	gcc	cac	cac	aac	aac	cac	tac	gac	ggc	gcc	atg	aac	ttc	atg	1152
	Lys	Cys	Ala	His	His	Asn	Asn	His	Tyr	Asp	Gly	Ala	Met	Asn	Phe	Met	
			370				375					380					
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	His	Arg	Asp	Glu	Glu	Val	Asp	Tyr	Tyr	Pro	Ser	Arg	His	Ala	Pro	Leu	
						390					395					400	
20	cgc	cac	gcg	ccg	ccg	acg	ccc	atc	acg	ccg	cgc	ccc	gtg	gtg	ggg	agg	1248
	Arg	His	Ala	Pro	Pro	Thr	Pro	Ile	Thr	Pro	Arg	Pro	Val	Val	Gly	Arg	
					405					410					415		
25	agg	cag	aag	gcg	acg	ata	cac	aag	cag	aac	gac	ttc	aag	cag	ccc	ggg	1296
	Arg	Gln	Lys	Ala	Thr	Ile	His	Lys	Gln	Asn	Asp	Phe	Lys	Gln	Pro	Gly	
				420					425					430			
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	Glu	Arg	Tyr	Arg	Ser	Trp	Ala	Pro	Asp	Arg	Gln	Glu	Arg	Phe	Ile	Pro	
			435					440					445				
35	ctt	cgc	cgg	cga	gtc	gcg	cac	ccc	aag	gtc	tcc	cct	gag	ctc	cgc	gcc	1392
	Leu	Arg	Arg	Arg	Val	Ala	His	Pro	Lys	Val	Ser	Pro	Glu	Leu	Arg	Ala	
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	Ile	Trp	Val	Asn	Tyr	Leu	Ser	Gln	Cys	Asp	Glu	Ser	Leu	Gly	Val	Lys	
						470					475					480	
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	Ile	Ala	Asn	Arg	Leu	Asn	Val	Lys	Pro	Ser	Met						
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70																	
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75																	
	His	Ala	Arg	Gly	Ala	Ser	Ala	Lys	Gly	Phe	Phe	Glu	Cys	Thr	His	Asp	
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10	Pro Glu Thr Ile Arg Asp Pro Arg Gly Phe Ala Val Lys Phe Tyr Thr		
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15	Arg Glu Gly Asn Trp Asp Leu Leu Gly Asn Asn Phe Pro Val Phe Phe		
	130	135	140
20	Ile Arg Asp Gly Ile Lys Phe Pro Asp Val Ile His Ala Phe Lys Pro		
	145	150	155
25	Asn Pro Arg Ser His Val Gln Glu Tyr Trp Arg Val Phe Asp Phe Leu		
	165	170	175
30	Ser His His Pro Glu Ser Leu His Thr Phe Phe Phe Leu Phe Asp Asp		
	180	185	190
35	Val Gly Ile Pro Thr Asp Tyr Arg His Met Asp Gly Phe Gly Val Asn		
	195	200	205
40	Thr Tyr Thr Phe Val Thr Arg Asp Ala Lys Ala Arg Tyr Val Lys Phe		
	210	215	220
45	His Trp Lys Pro Thr Cys Gly Val Ser Cys Leu Met Asp Asp Glu Ala		
	225	230	235
50	Thr Leu Val Gly Gly Lys Asn His Ser His Ala Thr Gln Asp Leu Tyr		
	245	250	255
55	Asp Ser Ile Ala Ala Gly Asn Phe Pro Glu Trp Lys Leu Phe Val Gln		
	260	265	270
60	Val Ile Asp Pro Glu Glu Glu Glu Arg Phe Asp Phe Asp Pro Leu Asp		
	275	280	285
65	Asp Thr Lys Thr Trp Pro Glu Asp Glu Val Pro Leu Arg Pro Val Gly		
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70	Arg Leu Val Leu Asn Arg Asn Val Asp Asn Phe Phe Asn Glu Asn Glu		
	305	310	315
75	Gln Leu Ala Phe Gly Pro Gly Leu Val Val Pro Gly Ile Tyr Tyr Ser		
	325	330	335
80	Asp Asp Lys Met Leu Gln Cys Arg Val Phe Ala Tyr Ala Asp Thr Gln		
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85	Arg Tyr Arg Leu Gly Pro Asn Tyr Leu Met Leu Pro Val Asn Ala Pro		

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10	His Arg Asp Glu Glu Val Asp Tyr Tyr Pro Ser Arg His Ala Pro Leu 385 390 395 400			
15	Arg His Ala Pro Pro Thr Pro Ile Thr Pro Arg Pro Val Val Gly Arg 405 410 415			
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25	Glu Arg Tyr Arg Ser Trp Ala Pro Asp Arg Gln Glu Arg Phe Ile Pro 435 440 445			
30	Leu Arg Arg Arg Val Ala His Pro Lys Val Ser Pro Glu Leu Arg Ala 450 455 460			
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65	ggg aag agt gtg aat ggt cag gtc tgc cag att tgt ggc gac act gtt Gly Lys Ser Val Asn Gly Gln Val Cys Gln Ile Cys Gly Asp Thr Val 35 40 45	144		
70	ggc gtc tcg gcc acc ggc gac gtc ttt gtt gcc tgc aat gag tgc gcc Gly Val Ser Ala Thr Gly Asp Val Phe Val Ala Cys Asn Glu Cys Ala 50 55 60	192		
75	ttc ccg gtc tgc cgc cct tgc tac gag tac gag cgc aag gaa ggg aac Phe Pro Val Cys Arg Pro Cys Tyr Glu Tyr Glu Arg Lys Glu Gly Asn 65 70 75 80	240		
80	cag tgc tgc ccc cag tgc aag act aga tac aag agg cac aaa ggt agc Gln Cys Cys Pro Gln Cys Lys Thr Arg Tyr Lys Arg His Lys Gly Ser	288		

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15	ata cag aga cag ggg gaa gat gtt gac ctg tct tca tct tct cgc cac Ile Gln Arg Gln Gly Glu Asp Val Asp Leu Ser Ser Ser Ser Arg His 130 135 140	432		
20	gaa caa cat cgg att ccc cgt ctg aca agt ggg caa cag atc tca gga Glu Gln His Arg Ile Pro Arg Leu Thr Ser Gly Gln Gln Ile Ser Gly 145 150 155 160	480		
25	gag atc cct gat gct tcc ccc gat cgc cat tct atc cgc agc gga aca Glu Ile Pro Asp Ala Ser Pro Asp Arg His Ser Ile Arg Ser Gly Thr 165 170 175	528		
30	tca agc tat gtt gat cca agt gtt cca gtt cct gtg agg att gtg gac Ser Ser Tyr Val Asp Pro Ser Val Pro Val Pro Val Arg Ile Val Asp 180 185 190	576		
35	ccc tcc aag gac ttg aat tcc tat ggg att aac agt gtt gac tgg caa Pro Ser Lys Asp Leu Asn Ser Tyr Gly Ile Asn Ser Val Asp Trp Gln 195 200 205	624		
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45	gta gct aat aaa tat cca gag gca aga ggg gga gac atg gaa ggg act Val Ala Asn Lys Tyr Pro Glu Ala Arg Gly Gly Asp Met Glu Gly Thr 225 230 235 240	720		
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70	gtt atc tgt gaa att tgg ttt gcc tta tcc tgg ctc cta gat caa ttc Val Ile Cys Glu Ile Trp Phe Ala Leu Ser Trp Leu Leu Asp Gln Phe 305 310 315 320	960		
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80	ttg aga tat gat agg gag gga gag cca tca cag ctt gct ccc att gat Leu Arg Tyr Asp Arg Glu Gly Glu Pro Ser Gln Leu Ala Pro Ile Asp 340 345 350	1056		
85	gtc ttt gtc agt acg gtg gat cca cta aag gaa cct cct ctg atc aca Val Phe Val Ser Thr Val Asp Pro Leu Lys Glu Pro Pro Leu Ile Thr 355 360 365 370	1104		

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10	gtg tca tgc tat gtt tct gac gat ggt tca gct atg tta act ttt gag Val Ser Cys Tyr Val Ser Asp Asp Gly Ser Ala Met Leu Thr Phe Glu 385 390 395 400	1200		
15	gct ctg tca gaa act gca gaa ttt gct agg aag tgg gtt ccg ttt tgc Ala Leu Ser Glu Thr Ala Glu Phe Ala Arg Lys Trp Val Pro Phe Cys 405 410 415	1248		
20	aag aag cac aat att gaa cca cga gct cca gag ttt tac ttt gct caa Lys Lys His Asn Ile Glu Pro Arg Ala Pro Glu Phe Tyr Phe Ala Gln 420 425 430	1296		
25	aaa ata gat tac ctg aag gac aaa atc caa cct tcc ttt gtt aaa gaa Lys Ile Asp Tyr Leu Lys Asp Lys Ile Gln Pro Ser Phe Val Lys Glu 435 440 445	1344		
30	agg cgg gca atg aag aga gag tat gaa gaa ttc aag gta cgg atc aat Arg Arg Ala Met Lys Arg Glu Tyr Glu Glu Phe Lys Val Arg Ile Asn 450 455 460	1392		
35	gct ctt gtt gcg aag gca caa aaa gta cct gaa gag ggg tgg acc atg Ala Leu Val Ala Lys Ala Gln Lys Val Pro Glu Glu Gly Trp Thr Met 465 470 475 480	1440		
40	gct gat ggc act gct tgg cct ggg aat aac cca agg gat cac cct ggc Ala Asp Gly Thr Ala Trp Pro Gly Asn Asn Pro Arg Asp His Pro Gly 485 490 495	1488		
45	atg att cag gtg ttc ttg ggg cac agt ggt ggg ctt gac act gat ggt Met Ile Gln Val Phe Leu Gly His Ser Gly Gly Leu Asp Thr Asp Gly 500 505 510	1536		
50	aac gag ttg cca cgg ctt gtc tac gtc tct cgt gaa aag agg cca gga Asn Glu Leu Pro Arg Leu Val Tyr Val Ser Arg Glu Lys Arg Pro Gly 515 520 525	1584		
55	ttc cag cat cac aag aag gct ggt gca atg aat gca ttg att cgt gta Phe Gln His His Lys Lys Ala Gly Ala Met Asn Ala Leu Ile Arg Val 530 535 540	1632		
60	tct gct gtg ctg aca aat ggt gcc tat ctt ctc aat gtg gat tgt gat Ser Ala Val Leu Thr Asn Gly Ala Tyr Leu Leu Asn Val Asp Cys Asp 545 550 555 560	1680		
65	cat tac ttc aac aat agc aaa gct ctt aga gaa gca atg tgc ttc atg His Tyr Phe Asn Asn Ser Lys Ala Leu Arg Glu Ala Met Cys Phe Met 565 570 575	1728		
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 Gly Lys Ser Val Asn Gly Gln Val Cys Gln Ile Cys Gly Asp Thr Val
 35 40 45
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 Gly Val Ser Ala Thr Gly Asp Val Phe Val Ala Cys Asn Glu Cys Ala
 50 55 60
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 Phe Pro Val Cys Arg Pro Cys Tyr Glu Tyr Glu Arg Lys Glu Gly Asn
 65 70 75 80
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 Gln Cys Cys Pro Gln Cys Lys Thr Arg Tyr Lys Arg His Lys Gly Ser
 85 90 95
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 Pro Arg Val Gln Gly Asp Glu Glu Glu Glu Asp Val Asp Asp Leu Asp
 100 105 110
 30
 Asn Glu Phe Asn Tyr Lys His Gly Asn Gly Lys Gly Pro Glu Trp Gln
 115 120 125
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 Ile Gln Arg Gln Gly Glu Asp Val Asp Leu Ser Ser Ser Ser Arg His
 130 135 140
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 Glu Gln His Arg Ile Pro Arg Leu Thr Ser Gly Gln Gln Ile Ser Gly
 145 150 155 160
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 Glu Ile Pro Asp Ala Ser Pro Asp Arg His Ser Ile Arg Ser Gly Thr
 165 170 175
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 Ser Ser Tyr Val Asp Pro Ser Val Pro Val Pro Val Arg Ile Val Asp
 180 185 190
 55
 Pro Ser Lys Asp Leu Asn Ser Tyr Gly Ile Asn Ser Val Asp Trp Gln
 195 200 205
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 Glu Arg Val Ala Ser Trp Arg Asn Lys Gln Asp Lys Asn Met Met Gln
 210 215 220
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 Val Ala Asn Lys Tyr Pro Glu Ala Arg Gly Gly Asp Met Glu Gly Thr
 225 230 235 240
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 Gly Ser Asn Gly Glu Asp Ile Gln Met Val Asp Asp Ala Arg Leu Pro
 245 250 255
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 Leu Ser Arg Ile Val Pro Ile Pro Ser Asn Gln Leu Asn Leu Tyr Arg
 260 265 270
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 Ile Val Ile Ile Leu Arg Leu Ile Ile Leu Met Phe Phe Phe Gln Tyr
 275 280 285

Arg Val Thr His Pro Val Arg Asp Ala Tyr Gly Leu Trp Leu Val Ser
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 Val Ile Cys Glu Ile Trp Phe Ala Leu Ser Trp Leu Leu Asp Gln Phe
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 Pro Lys Trp Tyr Pro Ile Asn Arg Glu Thr Tyr Leu Asp Arg Leu Ala
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 Leu Arg Tyr Asp Arg Glu Gly Glu Pro Ser Gln Leu Ala Pro Ile Asp
 340 345 350
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 Val Phe Val Ser Thr Val Asp Pro Leu Lys Glu Pro Pro Leu Ile Thr
 355 360 365
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 Ala Asn Thr Val Leu Ser Ile Leu Ala Val Asp Tyr Pro Val Asp Lys
 370 375 380
 Val Ser Cys Tyr Val Ser Asp Asp Gly Ser Ala Met Leu Thr Phe Glu
 385 390 395 400
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 Ala Leu Ser Glu Thr Ala Glu Phe Ala Arg Lys Trp Val Pro Phe Cys
 405 410 415
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 Lys Lys His Asn Ile Glu Pro Arg Ala Pro Glu Phe Tyr Phe Ala Gln
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 Lys Ile Asp Tyr Leu Lys Asp Lys Ile Gln Pro Ser Phe Val Lys Glu
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 Arg Arg Ala Met Lys Arg Glu Tyr Glu Glu Phe Lys Val Arg Ile Asn
 450 455 460
 Ala Leu Val Ala Lys Ala Gln Lys Val Pro Glu Glu Gly Trp Thr Met
 465 470 475 480
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 Ala Asp Gly Thr Ala Trp Pro Gly Asn Asn Pro Arg Asp His Pro Gly
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 500 505 510
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 Asn Glu Leu Pro Arg Leu Val Tyr Val Ser Arg Glu Lys Arg Pro Gly
 515 520 525
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 Phe Gln His His Lys Lys Ala Gly Ala Met Asn Ala Leu Ile Arg Val
 530 535 540
 Ser Ala Val Leu Thr Asn Gly Ala Tyr Leu Leu Asn Val Asp Cys Asp
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His Tyr Phe Asn Asn Ser Lys Ala Leu Arg Glu Ala Met Cys Phe Met
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 cag gac atc agt gtg cca ccc aag aag ctg tta ggc gtg aca atc tac 96
 Gln Asp Ile Ser Val Pro Pro Lys Lys Leu Leu Gly Val Thr Ile Tyr
 20 25 30
 30
 agc tca gat gca atc aga tcc att gcc ttc aac tac atc ggt gtg gat 144
 Ser Ser Asp Ala Ile Arg Ser Ile Ala Phe Asn Tyr Ile Gly Val Asp
 35 40 45
 35
 gga cag gaa tat gcc att ggt cca tgg ggt ggg ggc gaa agc acc tct 192
 Gly Gln Glu Tyr Ala Ile Gly Pro Trp Gly Gly Gly Glu Ser Thr Ser
 50 55 60
 40
 aca gag att aaa ctg ggc tcc tct gag cag atc aag gag att tct gga 240
 Thr Glu Ile Lys Leu Gly Ser Ser Glu Gln Ile Lys Glu Ile Ser Gly
 65 70 75 80
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 acc cat ggc cca gtc tat gat ctg gct gac att gtc acc tat ctt aag 288
 Thr His Gly Pro Val Tyr Asp Leu Ala Asp Ile Val Thr Tyr Leu Lys
 85 90 95
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 att gtg aca agt gct aat aat aca tac gag gct gga gtc cca aat gga 336
 Ile Val Thr Ser Ala Asn Asn Thr Tyr Glu Ala Gly Val Pro Asn Gly
 100 105 110
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 aag gaa ttc agc att cca ctg caa gac tct ggc cat gtc gtt gga ttc 384
 Lys Glu Phe Ser Ile Pro Leu Gln Asp Ser Gly His Val Val Gly Phe
 115 120 125
 60
 ttt gga agg tct gga acg ctt atc gac gca att ggc atc tac gtc cac 432
 Phe Gly Arg Ser Gly Thr Leu Ile Asp Ala Ile Gly Ile Tyr Val His
 130 135 140
 cct tga 438
 Pro
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5 Gln Asp Ile Ser Val Pro Pro Lys Lys Leu Leu Gly Val Thr Ile Tyr
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10 Ser Ser Asp Ala Ile Arg Ser Ile Ala Phe Asn Tyr Ile Gly Val Asp
 35 40 45

15 Gly Gln Glu Tyr Ala Ile Gly Pro Trp Gly Gly Gly Glu Ser Thr Ser
 50 55 60

20 Thr Glu Ile Lys Leu Gly Ser Ser Glu Gln Ile Lys Glu Ile Ser Gly
 65 70 75 80

25 Thr His Gly Pro Val Tyr Asp Leu Ala Asp Ile Val Thr Tyr Leu Lys
 85 90 95

Ile Val Thr Ser Ala Asn Asn Thr Tyr Glu Ala Gly Val Pro Asn Gly
 100 105 110

30 Lys Glu Phe Ser Ile Pro Leu Gln Asp Ser Gly His Val Val Gly Phe
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35 Phe Gly Arg Ser Gly Thr Leu Ile Asp Ala Ile Gly Ile Tyr Val His
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40 Pro
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 Ala Ala Lys Asp Tyr Thr Asp Pro Pro Pro Ala Pro Leu Ile Asp Ala
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60 gcg gag ctg ggg tcg tgg tcc ctg tac cgc gcc gtc atc gcc gag ttc 144
 Ala Glu Leu Gly Ser Trp Ser Leu Tyr Arg Ala Val Ile Ala Glu Phe
 35 40 45

65 atc gcc acg ctg ctg ttc ctg tac atc acc gtg gcc acg gtg atc ggg 192
 Ile Ala Thr Leu Leu Phe Leu Tyr Ile Thr Val Ala Thr Val Ile Gly
 50 55 60

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	Tyr Lys His Gln Thr Asp Ala Ser Ala Ser Gly Ala Asp Ala Ala Cys	
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	Gly Gly Val Gly Leu Gly Ile Ser Trp Ala Phe Gly Gly Met Ile	
	85 90 95	
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	Phe Ile Leu Val Tyr Cys Thr Ala Gly Ile Ser Gly Gly His Ile Asn	
	100 105 110	
15	ccg gcg gtg acg ttc ggg ctc ttc ctg gcg cgc aag gtg tcc ctg gtc	384
	Pro Ala Val Thr Phe Gly Leu Phe Leu Ala Arg Lys Val Ser Leu Val	
	115 120 125	
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	Arg Ala Ile Leu Tyr Ile Val Ala Gln Cys Leu Gly Ala Ile Cys Gly	
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	Val Gly Leu Val Asn Ala Phe Pro Asn Ala Tyr Phe Asn Arg Tyr Gly	
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30	ggc ggc gcc aac acc ctc gcc gcc ggc tac tcc aag ggc acc ggc ctc	528
	Gly Gly Ala Asn Thr Leu Ala Ala Gly Tyr Ser Lys Gly Thr Gly Leu	
	165 170 175	
35	gcc gcc gag atc atc ggc acc ttc gtg ctc gtc tac acc gtc ttc tcc	576
	Ala Ala Glu Ile Ile Gly Thr Phe Val Leu Val Tyr Thr Val Phe Ser	
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40	gcc acc gac ccc aag cgc aac gcc cgc gac tca cat gtc ccg gtc ttg	624
	Ala Thr Asp Pro Lys Arg Asn Ala Arg Asp Ser His Val Pro Val Leu	
	195 200 205	
45	gcg ccg ctg cca atc ggc ttc gcc gtg ttc atg gtc cac ctg gcg acg	672
	Ala Pro Leu Pro Ile Gly Phe Ala Val Phe Met Val His Leu Ala Thr	
	210 215 220	
50	atc ccg atc acc ggc acc ggc atc aac ccg gcc agg agc atc gga gcg	720
	Ile Pro Ile Thr Gly Thr Gly Ile Asn Pro Ala Arg Ser Ile Gly Ala	
	225 230 235 240	
55	gcc gtc atc ttc aac aac gag aag gcg tgg cac aac cat tgg atc ttc	768
	Ala Val Ile Phe Asn Asn Glu Lys Ala Trp His Asn His Trp Ile Phe	
	245 250 255	
60	tgg gtc ggc ccg ttc gtc ggc gcc gcc atc gcg gcg ttc tac cac cag	816
	Trp Val Gly Pro Phe Val Gly Ala Ala Ile Ala Ala Phe Tyr His Gln	
	260 265 270	
65	tac atc ctc cgg gcc ggc gcc atc aag gcc ctc ggc tcc ttc agg agc	864
	Tyr Ile Leu Arg Ala Gly Ala Ile Lys Ala Leu Gly Ser Phe Arg Ser	
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	Asn Ala	
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10	Ala	Glu	Leu	Gly	Ser	Trp	Ser	Leu	Tyr	Arg	Ala	Val	Ile	Ala	Glu	Phe	
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25	Gly	Gly	Val	Gly	Val	Leu	Gly	Ile	Ser	Trp	Ala	Phe	Gly	Gly	Met	Ile	
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	225					230					235				240		
75	Ala	Val	Ile	Phe	Asn	Asn	Glu	Lys	Ala	Trp	His	Asn	His	Trp	Ile	Phe	
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80	Trp	Val	Gly	Pro	Phe	Val	Gly	Ala	Ala	Ile	Ala	Ala	Phe	Tyr	His	Gln	
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 Pro Thr Val Asp Gly Met Val Asp Leu Lys Ile Pro Ser Gly Thr Gln
 20 25 30

30 cca ggc aca acg tta gtg atg tcc aag aaa ggt gtc cca ctc ctc ggg 144
 Pro Gly Thr Thr Leu Val Met Ser Lys Lys Gly Val Pro Leu Leu Gly
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35 aag tca aat gct cgt gga gac cag cta gtg cgt gta cag gtc gag att 192
 Lys Ser Asn Ala Arg Gly Asp Gln Leu Val Arg Val Gln Val Glu Ile
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40 cca aag cgt ctg agc agc gac gag agg aag ctg att gaa gaa ctt gca 240
 Pro Lys Arg Leu Ser Ser Asp Glu Arg Lys Leu Ile Glu Glu Leu Ala
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 35 40 45

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Pro Lys Arg Leu Ser Ser Asp Glu Arg Lys Leu Ile Glu Glu Leu Ala

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	Gln Cys Lys Pro Leu Pro Glu Pro Glu Val Arg Ala Leu Cys Glu Lys				
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	Ala Lys Glu Ile Leu Met Glu Glu Ser Asn Val Gln Pro Val Lys Ser				
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	Pro Val Thr Ile Cys Gly Asp Ile His Gly Gln Phe His Asp Leu Ala				
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	Glu Leu Phe Arg Ile Gly Gly Lys Cys Pro Asp Thr Asn Tyr Leu Phe				
	65 70 75 80				
45	atg gga gat tac gtg gat cgt ggt tat tat tct gtt gaa act gtc acg				288
	Met Gly Asp Tyr Val Asp Arg Gly Tyr Tyr Ser Val Glu Thr Val Thr				
	85 90 95				
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	Leu Leu Val Ala Leu Lys Val Arg Tyr Pro Gln Arg Ile Thr Ile Leu				
	100 105 110				
55	aga gga aac cac gaa agt cga cag atc act caa gtt tat gga ttc tat				384
	Arg Gly Asn His Glu Ser Arg Gln Ile Thr Gln Val Tyr Gly Phe Tyr				
	115 120 125				
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	Asp Glu Cys Leu Arg Lys Tyr Gly Asn Ala Asn Val Trp Lys Thr Phe				
	130 135 140				
65	aca gat ctc ttc gat tac ttc ccc ttg aca gca ttg gtt gag tca gaa				480
	Thr Asp Leu Phe Asp Tyr Phe Pro Leu Thr Ala Leu Val Glu Ser Glu				
	145 150 155 160				
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	Ile Phe Cys Leu His Gly Gly Leu Ser Pro Ser Ile Glu Thr Leu Asp				
	165 170 175				
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	Asn Ile Arg Asn Phe Asp Arg Val Gln Glu Val Pro His Glu Gly Pro				
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	245	250		255
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	260	265		270
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60	Pro Val Thr Ile Cys Gly Asp Ile His Gly Gln Phe His Asp Leu Ala			
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65	Glu Leu Phe Arg Ile Gly Gly Lys Cys Pro Asp Thr Asn Tyr Leu Phe			
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70	Met Gly Asp Tyr Val Asp Arg Gly Tyr Tyr Ser Val Glu Thr Val Thr			
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75	Leu Leu Val Ala Leu Lys Val Arg Tyr Pro Gln Arg Ile Thr Ile Leu			
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	gct ttc aag aac ctc cag gtg gcg att aag tgc aag aac ggc aac ggc	192
	Ala Phe Lys Asn Leu Gln Val Ala Ile Lys Cys Lys Asn Gly Asn Gly	
	50 55 60	
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	gag tac gag agc aag gcc act gga aag ctc gac ggc acc ggt gcc ttc	240
	Glu Tyr Glu Ser Lys Ala Thr Gly Lys Leu Asp Gly Thr Gly Ala Phe	
	65 70 75 80	
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	agc gtc ccc ctt gac gcc gac ctc cac agc tcc gac tgc atc gct cag	288
	Ser Val Pro Leu Asp Ala Asp Leu His Ser Ser Asp Cys Ile Ala Gln	
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75	cat act cca aac cag ctg atc caa tca ctt gtg caa cta acc agt gaa	864
	His Thr Pro Asn Gln Leu Ile Gln Ser Leu Val Gln Leu Thr Ser Glu	
	275 280 285	
80	aga gag aga atg gca gca caa gtt ttt cag cca agt tat agg ttg cca	912
	Arg Glu Arg Met Ala Ala Gln Val Phe Gln Pro Ser Tyr Arg Leu Pro	
	290 295 300	

acg atg agc ata gaa gaa gct ggc tta cgt gag atg aaa atg atg gag 960
 Thr Met Ser Ile Glu Glu Ala Gly Leu Arg Glu Met Lys Met Met Glu
 305 310 315 320
 5
 aaa tgg caa gaa aga act gcc aag atg att caa gaa tca aac tcc gca 1008
 Lys Trp Gln Glu Arg Thr Ala Lys Met Ile Gln Glu Ser Asn Ser Ala
 325 330 335
 10
 tgg cac aag gat ggc agt cgg tca gcc caa gag gac gag gac gcc gaa 1056
 Trp His Lys Asp Gly Ser Arg Ser Ala Gln Glu Asp Glu Asp Ala Glu
 340 345 350
 15
 gag gag aaa gcg aga gga tgg gat gac tgg aag gac gat aac cct cgt 1104
 Glu Glu Lys Ala Arg Gly Trp Asp Asp Trp Lys Asp Asp Asn Pro Arg
 355 360 365
 20
 ggt gca ggc aac aag aag ctc act ccc tgt ggc taa 1140
 Gly Ala Gly Asn Lys Lys Leu Thr Pro Cys Gly
 370 375
 25
 <210> 170
 <211> 379
 <212> PRT
 <213> Oryza sativa
 <400> 170
 30
 Met Val Glu Val Glu Glu Val Ser Asn Lys Met Gln Val Gln Met Arg
 1 5 10 15
 35
 Leu His Pro Ala Ala Ala Ala Glu Glu Glu Asp Ala Asp Leu Pro Leu
 20 25 30
 40
 Pro Ala Leu Phe Asp Lys Ala Ser His Leu His Ser Leu Ala Ser Ser
 35 40 45
 45
 Ser Ser Leu Asp Gln Glu Gly Ile Arg Lys Gly Val Asp Leu Leu Arg
 50 55 60
 50
 Arg Cys Asp Glu Met Val Ser Lys Val Gly Leu Phe Ser Ser Asn Glu
 65 70 75 80
 55
 Thr Lys Asp Asp Ile Ser Thr Ala Asn Leu Lys Tyr Leu Leu Val Pro
 85 90 95
 60
 Tyr Tyr Leu Gly Glu Met Thr Glu Arg Val Ala Gln Glu Asp Arg Ile
 100 105 110
 65
 Pro Val Leu Lys Ala Ser Gln Asp His Leu Lys Glu Phe Ile Ser Ile
 115 120 125
 70
 Cys Glu Ala Leu Glu Leu Ile Ser Glu Asp Glu Leu Glu Ile Ser Arg
 130 135 140
 75
 65
 Gln Lys Asn Leu Ile Pro Trp Gln Ile Glu Glu His Arg Arg Leu His
 145 150 155 160

Gly Ser Ser Ala Lys Arg Leu Gln Lys Gln Ser Ser Arg Ile Lys Glu
 165 170 175
 5 Arg Lys Glu Arg Arg Arg Arg His Glu Ser Ser Cys Leu Ser Ala Pro
 180 185 190
 10 Ile Glu Leu Gly Gly Asp Leu Leu Arg Met Met Glu Lys Glu Arg Glu
 195 200 205
 15 Gly Met Val Ser Tyr Tyr Leu Ile Gly Ser Ile Glu Gly Phe Asp Leu
 210 215 220
 20 Leu Asp Met Leu Lys Lys Glu Glu Glu Ile Val Pro Ala Val Lys Glu
 225 230 235 240
 25 Gly Lys Arg Arg Met Val Met His Leu Leu Val Lys Cys Leu Met Asn
 245 250 255
 30 Val Gln Lys Gly Leu Lys His Gly Thr Ile Met Leu Pro Thr Val His
 260 265 270
 35 His Thr Pro Asn Gln Leu Ile Gln Ser Leu Val Gln Leu Thr Ser Glu
 275 280 285
 40 Arg Glu Arg Met Ala Ala Gln Val Phe Gln Pro Ser Tyr Arg Leu Pro
 290 295 300
 45 Thr Met Ser Ile Glu Glu Ala Gly Leu Arg Glu Met Lys Met Met Glu
 305 310 315 320
 50 Lys Trp Gln Glu Arg Thr Ala Lys Met Ile Gln Glu Ser Asn Ser Ala
 325 330 335
 55 Trp His Lys Asp Gly Ser Arg Ser Ala Gln Glu Asp Glu Asp Ala Glu
 340 345 350
 60 Glu Glu Lys Ala Arg Gly Trp Asp Asp Trp Lys Asp Asp Asn Pro Arg
 355 360 365
 65 Gly Ala Gly Asn Lys Lys Leu Thr Pro Cys Gly
 370 375
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 <211> 783
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 <400> 171

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5	ctt gcc gag cag gct gag cgt tac gag gaa atg gtc gaa ttc atg gag Leu Ala Glu Gln Ala Glu Arg Tyr Glu Glu Met Val Glu Phe Met Glu 20 25 30 96
10	aag gtg gca aag acc act gat gtt ggt gag ctc acc gtt gag gag cgg Lys Val Ala Lys Thr Thr Asp Val Gly Glu Leu Thr Val Glu Glu Arg 35 40 45 144
15	aac ctg ctt tct gtg gct tac aag aac gtg att ggt gct cgg agg gca Asn Leu Leu Ser Val Ala Tyr Lys Asn Val Ile Gly Ala Arg Arg Ala 50 55 60 192
20	tcg tgg agg atc atc tct tct att gag cag aag gag gag agc cgt ggg Ser Trp Arg Ile Ile Ser Ser Ile Glu Gln Lys Glu Glu Ser Arg Gly 65 70 75 80 240
	aat gag gca tat gtt gca tca att aag gag tac cgt agc agg att gaa Asn Glu Ala Tyr Val Ala Ser Ile Lys Glu Tyr Arg Ser Arg Ile Glu 85 90 95 288
25	act gag ctc agc aag atc tgt gat ggt atc ctt aag ctt ctg gat tcc Thr Glu Leu Ser Lys Ile Cys Asp Gly Ile Leu Lys Leu Leu Asp Ser 100 105 110 336
30	cac ctt gtc cca tct gcc act gct gca gag tcc aag gtg ttc tac ctg His Leu Val Pro Ser Ala Thr Ala Glu Ser Lys Val Phe Tyr Leu 115 120 125 384
35	aaa atg aag ggt gac tac cac agg tac ctt gct gag ttt aag tca gga Lys Met Lys Gly Asp Tyr His Arg Tyr Leu Ala Glu Phe Lys Ser Gly 130 135 140 432
40	gct gag agg aag gaa gca gct gag aac act ctt gtg gca tac aag tct Ala Glu Arg Lys Glu Ala Ala Glu Asn Thr Leu Val Ala Tyr Lys Ser 145 150 155 160 480
	gcc cag gat att gca ctc gct gac ctg cct aca act cac ccg ata agg Ala Gln Asp Ile Ala Leu Ala Asp Leu Pro Thr Thr His Pro Ile Arg 165 170 175 528
45	ctt gga ctt gca ctg aac ttc tca gtg ttc tac tat gag ata ctg aac Leu Gly Leu Ala Leu Asn Phe Ser Val Phe Tyr Tyr Glu Ile Leu Asn 180 185 190 576
50	tca cca gac cgt gct tgc aac ctt gca aag cag gcg ttc gac gat gct Ser Pro Asp Arg Ala Cys Asn Leu Ala Lys Gln Ala Phe Asp Asp Ala 195 200 205 624
55	att gct gaa ctg gac act ctt ggc gag gag tct tac aag gac agc acc Ile Ala Glu Leu Asp Thr Leu Gly Glu Glu Ser Tyr Lys Asp Ser Thr 210 215 220 672
60	ttg atc atg caa ctt ctt cgt gac aat ctg act ctc tgg acc tct gac Leu Ile Met Gln Leu Leu Arg Asp Asn Leu Thr Leu Trp Thr Ser Asp 225 230 235 240 720
	aat gcg gag gat ggt ggt gac gag atc aag gaa gca gcg aag cct gaa Asn Ala Glu Asp Gly Gly Asp Glu Ile Lys Glu Ala Ala Lys Pro Glu 245 250 255 768
65	gga gag ggc cac taa Gly Glu Gly His 260 783

<210> 172
 <211> 260
 <212> PRT
 5 <213> Oryza sativa

 <400> 172

 Met Ser Pro Ala Glu Ala Ser Arg Glu Glu Asn Val Tyr Met Ala Lys
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 Leu Ala Glu Gln Ala Glu Arg Tyr Glu Glu Met Val Glu Phe Met Glu
 15 20 25 30

 Lys Val Ala Lys Thr Thr Asp Val Gly Glu Leu Thr Val Glu Glu Arg
 35 40 45
 20
 Asn Leu Leu Ser Val Ala Tyr Lys Asn Val Ile Gly Ala Arg Arg Ala
 50 55 60
 25 Ser Trp Arg Ile Ile Ser Ser Ile Glu Gln Lys Glu Glu Ser Arg Gly
 65 70 75 80
 30 Asn Glu Ala Tyr Val Ala Ser Ile Lys Glu Tyr Arg Ser Arg Ile Glu
 85 90 95
 35 Thr Glu Leu Ser Lys Ile Cys Asp Gly Ile Leu Lys Leu Leu Asp Ser
 100 105 110
 His Leu Val Pro Ser Ala Thr Ala Ala Glu Ser Lys Val Phe Tyr Leu
 115 120 125
 40 Lys Met Lys Gly Asp Tyr His Arg Tyr Leu Ala Glu Phe Lys Ser Gly
 130 135 140
 45 Ala Glu Arg Lys Glu Ala Ala Glu Asn Thr Leu Val Ala Tyr Lys Ser
 145 150 155 160
 50 Ala Gln Asp Ile Ala Leu Ala Asp Leu Pro Thr Thr His Pro Ile Arg
 165 170 175
 55 Leu Gly Leu Ala Leu Asn Phe Ser Val Phe Tyr Tyr Glu Ile Leu Asn
 180 185 190
 Ser Pro Asp Arg Ala Cys Asn Leu Ala Lys Gln Ala Phe Asp Asp Ala
 195 200 205
 60 Ile Ala Glu Leu Asp Thr Leu Gly Glu Glu Ser Tyr Lys Asp Ser Thr
 210 215 220
 65 Leu Ile Met Gln Leu Leu Arg Asp Asn Leu Thr Leu Trp Thr Ser Asp
 225 230 235 240

Asn Ala Glu Asp Gly Gly Asp Glu Ile Lys Glu Ala Ala Lys Pro Glu
245 250 255

5 Gly Glu Gly His
260

10 <210> 173
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<212> DNA
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15 <220>
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Met Gly Ser Glu Gly Pro Ser Gly Val Thr Val His Val Thr Gly Phe
1 5 10 15

25 aag aag ttc cat gga gtc gct gag aat ccg acg gag aag att gtg cgc 96
Lys Lys Phe His Gly Val Ala Glu Asn Pro Thr Glu Lys Ile Val Arg
20 25 30

30 aat ctt gag tca ttt atg gaa aag aga ggg ttg cct aaa ggt tta aca 144
Asn Leu Glu Ser Phe Met Glu Lys Arg Gly Leu Pro Lys Gly Leu Thr
35 40 45

35 ctt gga agt tgc act gtt ctt gag act gct ggg cag ggt ggg ctt ggt 192
Leu Gly Ser Cys Thr Val Leu Glu Thr Ala Gly Gln Gly Gly Leu Gly
50 55 60

ccg ttg tat gaa gtg ttt gaa tca gcc atc gta gac aaa gag tat ggg 240
Pro Leu Tyr Glu Val Phe Glu Ser Ala Ile Val Asp Lys Glu Tyr Gly
65 70 75 80

40 ttg aat gat cag ggg caa gtg att ctg ctc cat ttt gga gtc aac agt 288
Leu Asn Asp Gln Gly Gln Val Ile Leu Leu His Phe Gly Val Asn Ser
85 90 95

45 ggc aca aca agg ttt gcc ctt gag aat caa gct att aat gaa gct acc 336
Gly Thr Thr Arg Phe Ala Leu Glu Asn Gln Ala Ile Asn Glu Ala Thr
100 105 110

50 ttc cgt tgc cct gat gag ctg gga tgg aaa cca cag agg gcc cct att 384
Phe Arg Cys Pro Asp Glu Leu Gly Trp Lys Pro Gln Arg Ala Pro Ile
115 120 125

55 gtg tca tct gat gga agc atc tca aat tta aga aag acc act gtg cct 432
Val Ser Ser Asp Gly Ser Ile Ser Asn Leu Arg Lys Thr Thr Val Pro
130 135 140

gtg aat gaa gtg aac aag tcc cta caa cag atg ggc ttc gat gtg gcg 480
Val Asn Glu Val Asn Lys Ser Leu Gln Gln Met Gly Phe Asp Val Ala
145 150 155 160

60 cct tcg gat gac gct ggt cga ttc gta tgc aac tat gtc tat tac caa 528
Pro Ser Asp Asp Ala Gly Arg Phe Val Cys Asn Tyr Val Tyr Tyr Gln
165 170 175

65 tct ctt agg ttc gca gaa cag cgc ggt atc aag tct ttg ttc gtc cat 576
Ser Leu Arg Phe Ala Glu Gln Arg Gly Ile Lys Ser Leu Phe Val His
180 185 190

ttc ccc ctc ttc acg acg att agt gag gaa gtt cag atg aac ttc gtc 624

Phe Pro Leu Phe Thr Thr Ile Ser Glu Glu Val Gln Met Asn Phe Val
 195 200 205
 5 gca acc ctc ctc gaa gtt ctt gct tcc cag aac tat gca cag taa 669
 Ala Thr Leu Leu Glu Val Leu Ala Ser Gln Asn Tyr Ala Gln
 210 215 220
 <210> 174
 10 <211> 222
 <212> PRT
 <213> Oryza sativa
 <400> 174
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 1 5 10 15
 20 Lys Lys Phe His Gly Val Ala Glu Asn Pro Thr Glu Lys Ile Val Arg
 20 25 30
 25 Asn Leu Glu Ser Phe Met Glu Lys Arg Gly Leu Pro Lys Gly Leu Thr
 35 40 45
 30 Leu Gly Ser Cys Thr Val Leu Glu Thr Ala Gly Gln Gly Gly Leu Gly
 50 55 60
 Pro Leu Tyr Glu Val Phe Glu Ser Ala Ile Val Asp Lys Glu Tyr Gly
 65 70 75 80
 35 Leu Asn Asp Gln Gly Gln Val Ile Leu Leu His Phe Gly Val Asn Ser
 85 90 95
 40 Gly Thr Thr Arg Phe Ala Leu Glu Asn Gln Ala Ile Asn Glu Ala Thr
 100 105 110
 45 Phe Arg Cys Pro Asp Glu Leu Gly Trp Lys Pro Gln Arg Ala Pro Ile
 115 120 125
 50 Val Ser Ser Asp Gly Ser Ile Ser Asn Leu Arg Lys Thr Thr Val Pro
 130 135 140
 Val Asn Glu Val Asn Lys Ser Leu Gln Gln Met Gly Phe Asp Val Ala
 145 150 155 160
 55 Pro Ser Asp Asp Ala Gly Arg Phe Val Cys Asn Tyr Val Tyr Tyr Gln
 165 170 175
 60 Ser Leu Arg Phe Ala Glu Gln Arg Gly Ile Lys Ser Leu Phe Val His
 180 185 190
 65 Phe Pro Leu Phe Thr Thr Ile Ser Glu Glu Val Gln Met Asn Phe Val
 195 200 205
 Ala Thr Leu Leu Glu Val Leu Ala Ser Gln Asn Tyr Ala Gln

210

215

220